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TCRP Report 37

A Handbook: Integrating Market Research into Transit Management

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Report 37

A Handbook: Integrating Market Research into Transit Management

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TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration—now the Federal Transit Administration (FTA). A report by the American Public Transit Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA; the National Academy of Sciences, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

Once selected, each project is assigned to an expert panel, appointed by the Transportation Research Board. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, TCRP project panels serve voluntarily without compensation.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

The TCRP provides a forum where transit agencies can cooperatively address common operational problems. The TCRP results support and complement other ongoing transit research and training programs.

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The members of the technical advisory panel selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and while they have been accepted as appropriate by the technical panel, they are not necessarily those of the Transportation Research Board, the National Research Council, the Transit Development Corporation, or the Federal Transit Administration of the U.S. Department of Transportation.

Each report is reviewed and accepted for publication by the technical panel according to procedures established and monitored by the Transportation Research Board Executive Committee and the Governing Board of the National Research Council.

To save time and money in disseminating the research findings, the report is essentially the original text as submitted by the research agency. This report has not been edited by TRB.

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FOREWORD

*By Staff
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This handbook focuses on the status of market research as practiced in transit agencies and identifies major market issues confronting them. The handbook also evaluates market research strategies appropriate for transit and provides guidance to integrate and institutionalize market research into decision-making processes of transit agencies. Finally, it examines some institutional barriers that limit the use of market research. The handbook is intended to expose transit managers and staff to current market research practices and cutting-edge ideas in market research.

Transit managers and marketing professionals are continually looking for effective ways to recruit new riders, retain existing riders, and build constituencies. It appears, however, that some of the “old rules” concerning what factors most influence transit use may not be applicable in today’s environment. Market research strategies, tools, and methods can help transit professionals learn more about the markets they serve and identify new markets and market niches in today’s changed environment.

Under TCRP Project B-2, *Integrating Market Research Into Transit Management*, research was undertaken by Northwest Research Group, Inc., to examine current market and organizational theory as it applies to the integration of market research into decision-making, to document current practices, and to provide examples of the successful use of market research in the transit industry.

To achieve the project objectives, the researchers first defined the state of practice of market research as applied in transit agencies and the level of integration into transit management. Next, the researchers, via survey, identified the market issues now confronting transit agencies and the information required for effective decision-making that can be generated by market research. The results of the survey were analyzed and, on the basis of those results, in-depth case studies of a range of transit agencies were performed. Further, market research design strategies and processes were described and refined.

The executive summary to this report, “Directions: A Simple Guidebook for Integrating Market and Customer Research into Transit Decision-Making to Become Customer Oriented,” summarizes the analyses and case studies performed during the course of the project. It is available as “TCRP Web Document 3” on the Internet at www2.nas.edu/trbcrp.

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Assisting in this effort were Larry Sauve of LRS Associates (Bellevue, WA), Karen Jones-Savage of KJS Associates (Bellevue, WA), Lynne Morsen of Transcom Marketing (Seattle, WA), and Ray Shea of RS Omnicom (Seattle, WA).

This report is the result of a two-year collaborative effort. Gwen Chisholm, TCRP, administered the Project that was guided by TCRP Panel B-2, chaired by Joseph Caruso, and included: J. Barry Barker, Harold W. Barley, Kathryn Coffell, Peter Everett, Steven Githens, Cynthia Nordt, Lynn Ritter Otte, Catherine Ross, and Bert Arrillaga. They provided thoughtful oversight for the project and the necessary direction for this handbook.



Moving Targets

Managing Change by Integrating Market and Customer Research into Transit Management

TOOLBOX

- **Service Diagnosis – Declining Ridership:** Identification of the Problem
- **A Mechanic’s Dilemma:** Customer Acquisition vs. Customer Retention
- **Your Service Plan:** Market and Customer Research
- **The Nuts and Bolts:** An Overview of the Handbook

Today’s Challenge: The Issue of Declining Ridership

Maintaining ridership is a significant challenge facing public transportation agencies today. Historically transit’s share of total travel has been declining. This problem has been compounded by recent ridership decreases in many key properties such as Toronto, New York, and Washington, D.C.. In one recent survey of 147 transit agencies, three out of ten agencies reported that in the past three years, ridership on their system had decreased.ⁱ In another survey of more than 200 transit agencies nationwide, 44 percent of all managers said ridership – particularly the problem of declining ridership – is one of the most important current issues for their agency. Even funding – the most frequently cited problem – is related as a lack of riders leads to lower farebox recovery rates.ⁱⁱ

Other statistics further support the depth of this issue. In recent years, annual aggregate transit ridership has dropped 3 percent nationwide from 8.67 billion unlinked passenger trips in 1990 to 8.45 billion in 1993.ⁱⁱⁱ Fortunately, this is not a universally bleak situation. The most significant ridership declines have largely occurred in about a dozen large urban bus systems. Other agencies, notably those operating rail systems, have experienced increases in ridership. However, a closer examination of the situation shows that these successes largely resulted from service expansions into new geographic areas, route takeovers, and serving previously unserved markets, for example school children as opposed to attracting more riders in the traditional transit markets, such as commuters.

Ridership declines are a result of many factors. Changing demographics, geographic patterns of population, and employment trends have profoundly changed the transportation needs of the consumer. For example, as “baby boomers” age the demand for transit has decreased because transit use is more prevalent in younger rather than middle-aged generations. The baby boomers’ residential pattern has also affected transit use. The sheer size of this cohort has magnified the effects of the

historical trend for families with children to move from central cities to suburban areas that are more dispersed and less well served by public transportation.^{iv}

The explosion of women in the work force also has had enormous effects on transportation. The numbers of single parents and families in which both parents work have increased dramatically since 1970 and are now in the majority. By the year 2000, white women alone are forecasted to make up 42 percent of the work force.^v Although transit use tends to increase with increases in employment, the patterns of trip making have greatly changed. For example, research at Metro Transit in Seattle, Washington has shown that the work trips, which used to be well represented by single travel "links" from home to work and work to home, are now represented by a multi-link chain of trips that include child care, errands, shopping, and other stops along the way. When these links are part of the definition of a work trip, 45 percent of all trips are part of work trips in contrast to the previously estimated 23 percent.^{vi} By their very nature, these multi-link trip chains are not compatible with the use of traditional fixed route public transportation services.

Finally, the growth of business activities in suburban areas and the resultant growth of "edge cities"^{vii} imply an increased need for transportation alternatives from city to suburb and from suburb to suburb. Again, fixed route public transportation services are an inefficient means to serve these usually low-density origin and destination trips.

All these factors contribute to a changing pattern of travel, lifestyle, and value changes to which most transit agencies have been slow to adapt. Recently, however, more agencies have recognized the need to change to meet these trends. These agencies are increasingly adopting the growth strategies long used in the private sector and other public sector organizations facing competitive pressures.

The Response: Customer Acquisition versus Customer Retention

As transit agencies begin to address the issue of declining ridership, there has been a flurry of marketing and service development activities. However, without a proper focus, these efforts will fail. Transit agencies must recognize that growth in ridership is likely to come from three sources and that these sources vary significantly in their likely contribution to ridership.

First, attracting new riders to the system can increase ridership. This has been the route followed successfully by many agencies.

Phenomenal growth in the outlying areas of the Los Angeles area has fueled major increases in transit ridership at Riverside Transit Agency, Riverside County. Annual ridership increased 21.8 percent in 1991, 7.6 percent in 1992 and 12.8 percent in 1993. Major contributors to this growth are new service initiatives including expanded use of bike racks, addition of intercity express services, headway reductions from sixty to thirty minutes in key corridors, and feeder routes to rail stations serving MetroLink. The agency began community based planning initiatives focusing on a strong working relationship with locals and developers in service design, plus efforts to coordinate with individual businesses that moved locations. Finally, marketing and information initiatives including a "new look" design scheme and special marketing to "new" residents all worked together in an integrated program of communications.

The Lynx system serving Orlando, Florida has experienced double-digit ridership increases annually since 1990. A May 1994 study showed that ridership increased 34 percent over the previous eighteen months. While an aggressive and ongoing expansion of service and service types is largely responsible for this growth, aggressive marketing and a focus on the quality and differentiation of services also has contributed to Lynx's success. A variety of bold marketing initiatives assure that the quality of the travel experience is high. Unique vehicle paint schemes, informal driver uniforms, and the name change to "LYNX," are a few of the creative

steps taken. Attention has been placed on the quality and differentiation of services, responsive customer contacts and service monitoring. Services are adjusted rapidly to meet customer needs. LYNX has developed special programs to target specific markets. These include an "Advantage Program" for seniors, the KISS (Kids in School) program for students, local area circulators, demand-responsive services, and others. Finally, pass programs and promotions have led to expanded sales and expansion of sales outlets.^{viii}

Second, increasing the frequency of riding among current riders can increase ridership. Few agencies have focused on this effort. Moreover, it is not clear how much ridership would increase, as most riders tend to be regular riders – for example, commuters to and from work. Similarly, among transit-dependent riders, frequency of riding is likely to change only if travel patterns change and these are relatively stable over time. Finally, as many regular riders use monthly or annual passes, increased ridership may not affect fare box revenue. However, one agency – MCTO in Minneapolis, Minnesota – tested a "frequent rider" program similar to the awards programs offered for many years by airlines.

The MCTO Frequent Rider test program – promoted as Fare Game to the general public – was intended to measure customer's reactions when offered an incentive for increasing their use of transit and/or reaction to an award given as a way to say thank you for being a frequent user of MCTO service. Riders that successfully participated and "won" by riding MCTO forty times in a six-week period received an award booklet with coupons worth over \$100 from local merchants.

While most riders did not ride more often – they already rode four to five days a week – one out of ten riders did ride more to win. Moreover, results from follow-up research clearly showed that offering a discount on future purchases of an MCTO ticket or pass would be most effective in achieving the desired goal of customer loyalty and increased frequency of riding.

The 1994 test program provided a broader and better understanding of MCTO customer behavior as it relates to incentive programs, how future programs might best be structured, and what their chance and magnitude of success might be. MCTO is rolling out this test program on a wide basis.

Third, agencies can increase ridership through a strong rider retention effort. Surprisingly, transit agencies have only recently begun to recognize rider attrition as a major factor in declining ridership and focus their service planning, marketing, and operations efforts on this issue. The following example demonstrates the significance of rider attrition.

Since September of 1991, the Metropolitan Transit Authority of Harris County, Texas (METRO) has experienced flat or negative growth in ridership between both its local and park-and-ride users. METRO survey data from market research studies conducted between December 1991 and April 1992 revealed that while new riders continue to enter the system, riders are leaving the system as quickly as new riders enter.

Prompted by concern over this net loss of riders, METRO commissioned The Gallup Organization to undertake a large-scale assessment study to help determine the cause of this ridership attrition. This research showed that one in four (24 percent) regular local / express service riders – 4.9 percent of total adults – are no longer riding METRO. Nearly as many (17 percent) park-and-ride service riders – 1.6 percent of total adults – also have abandoned the system. Besides the riders who have left METRO's system entirely, 22 percent of current riders report they now ride the system less often. Reports by current and former riders show a 4 percent loss of trips in the past two years. Simultaneously, this ridership loss has been only partly countered with the addition of new riders and increased riding frequency among current riders. Three in ten current riders – 1.8 percent of all adults – are new METRO riders within the past year. Six percent of current riders – .4 percent of all adults – are riding METRO more often than last year.^{ix}

Research by other transit agencies, including Westchester County Department of Transportation and Tri-County Metropolitan Transportation District of Oregon (Tri-Met) show similar rates of rider attrition. In response to these concerns, these agencies have emphasized the development of programs and services specifically targeted at the needs and expectations of existing riders. Moreover, customer service programs, including operating training, have been introduced.

The Tool: Market and Customer Research

An effective program of customer and market research is essential to making decisions to increase ridership through customer acquisition and through customer retention.

First, there is strong support for a program of market research, service development, and marketing communications targeted specifically at customer retention. The private sector and many public utilities have long recognized the importance of customer retention. Initial customer satisfaction research by Peters and Waterman – *In Search of Excellence* – suggests that both satisfied and dissatisfied customers dramatically affect a firm's bottom line. They quantify three contributing factors:

- One hundred satisfied customers generate twenty-five new customers.
- For every complaint received, twenty other customers feel the same way but do not bother complaining.
- The cost of getting a new customer is five times as great as the cost of keeping a satisfied customer.

It is clear from these figures that customer retention efforts are an important factor in increasing the "profitability" of an agency due to the high costs of getting new riders. More important, customer retention efforts lead to increased ridership because loyal customers use a product or service more easily and more often. Finally, loyal customers provide excellent word-of-mouth advertising for an agency. Research has shown that the first thing many potential new riders do when considering riding is to ask a friend or relative who rides about their experiences and for information on how to ride.

The importance of customer retention efforts is perhaps more important in transit than in other industries – both public and private. The new environment in which transit finds itself operating is one of tough economic times. Increasingly, agencies face belt-tightening, layoffs, and elimination of nonessential services and programs. As a result, agencies are being asked for accountability. The very essence of accountability is an environment in which the agency values the customer and customer satisfaction. Agencies shown to be accountable are likely to survive – and even thrive – as they are provided with long-term allocation of resources.

Moreover, as agencies make service improvements and opportunities for new services present themselves, they will be faced increasingly with decisions that require the allocation of scarce resources to a variety of challenges. A key question agencies need to answer is, "What alternatives represent the greatest opportunity to acquire new riders for the least cost?" An effective program of market and customer research makes a major contribution to clarifying and resolving issues, and then choosing among decision alternatives.

The Handbook: An Overview

Although satisfying customers, retaining existing riders, and acquiring new riders may seem elementary ideas, serious research in this area is a new endeavor for many transit agencies. Very few agencies presently conduct rigorous market and customer research. Even fewer of them act effectively on the results of the research. Moreover, market and customer research has yet to be integrated thoroughly into key strategic and policy decisions at most transit agencies. The real value and success of customer research that is yet to be discovered hinges on incorporating the findings of market and customer research into the quality-improvement process.

This handbook focuses first on identifying market research programs that successfully provide information for the development of operations, service, and marketing strategies targeted at achieving growth through the retention of existing riders. Next, we explore market and customer research programs specifically targeted at achieving growth by reaching new markets and attracting new riders.

The purpose of this handbook is to give transit managers and staff a broad exposure to and knowledge of current practices and cutting edge ideas in customer research as it applies to these areas. Using a mix of theory and real-life experiences, users should gain an understanding of how to approach customer research, current measurement methodologies, and their application. Users also will learn how to make informed decisions about measurement models appropriate for their agencies, and how they can integrate these practices into the organization. Finally, the handbook examines some institutional barriers that limit the use of market and customer research. Strategies for converting an organization to a "learning organization" are presented.

The specific objectives of this handbook are to:

- 1) Examine the current marketing and organizational theory as it applies to the integration of market and customer research into decision-making.
- 2) Identify state-of-the-art approaches that can raise current standards for measuring customer expectations and needs for public transportation products and services.
- 3) Examine strategies for setting up a successful customer research program that provides relevant information that can be used to plan for and develop transit services, and to develop marketing strategies targeted at achieving ridership growth by retaining existing customers and acquiring new ones.
- 4) Provide transit agencies with specific tools and methodologies for developing a market and customer research program.
- 5) Develop a market-based model for a market and customer research program.
- 6) Identify a variety of perspectives on how to develop and deploy an integrated market and customer research process in a transit organization.
- 7) Examine strategies used by organizations to focus and direct improvement and corrective action initiatives resulting from a sustained market and customer research program.
- 8) Provide examples of the successful use of market and customer research in transit.

We have divided the handbook into two sections. Section I covers the basic principles outlined above. An extensive review of literature sources in the field of marketing, organizational behavior, and market research forms the basis for these principles. We have borrowed liberally from this literature to provide a broad-brush exposure to these principles. Footnotes and a detailed bibliography are provided for those who wish to explore these principles in more depth.

Section II contains twelve case studies that illustrate the use of market and customer research in transit management. The agencies chosen for study were chosen to represent the successful use of market and customer research in decision-making successfully, both at an operational and policy level. The agencies were selected to represent different types of properties – small versus large agencies, rail only versus bus only – and different regions of the country. Also, these agencies demonstrate the use of innovative approaches to market research, a high degree of exchange between the market research function and key decision-makers, and clear examples of both successes and failures regarding how market research has related to transit management.



A Customer- and Market-Orientation

The Role of Market and Customer Research in Achieving a Customer- and Market-Orientation

TOOLBOX

- **The Speed Bump Paradox:** Customer- and Market-Orientation, Customer Satisfaction, and Agency Follow-Through
- **Crossing the Line:** A “Customer-Orientation” Questionnaire
- **Hazard Cones and Crossing Gates:** Barriers to a Customer- and Market- Orientation
- **Green Means Go:** Becoming Customer- and Market-Oriented
- **Changing Lanes:** Managing Change With The “A Victory Model”

Are We Customer-Oriented?

A customer-orientation has been a paradox in the field of management. On one hand, businesses have stressed the importance of the customer. However, examples of products and services brought to market with apparently little consideration of customer needs, wants, and expectations abound.

For more than forty years, managers in every field have been exhorted to “stay close to the customer,” to “put the customer first,” and to define the purpose of a business as the creation and retention of satisfied customers. The earliest proponent of this philosophy was Peter Drucker, who in 1954 argued that creating a satisfied customer was the only valid definition of business purpose.

There is only one valid definition of business purpose: to create a satisfied customer. It is the customer who determines who the business is. Because it is its purpose to create a customer, any business enterprise has two – and only these two – basic functions: marketing and innovation.

Actually, marketing is so basic that it is not just enough to have a strong sales force and to entrust marketing to it. Marketing is not only much broader than selling, it is not a specialized activity at all. It is the whole business seen from the point of view of its final results, that is, from the customer's point of view.^x

Despite this, American firms generally, and transit agencies specifically, have failed to make major strides toward becoming truly customer-oriented. For example, one study revealed four fundamental factors about most companies.

- First, they say they want to know their customers.
- Second, they say that they want to deliver the products and services that meet the needs of their customers.

However,

- Seventy-five to ninety-five percent of all people in the companies studied have no idea who the company's customers are and do not see how their jobs affect the customer.
- Many customers report that from their perspective, these very companies seem incapable of coordinating efforts to get them what they need.^{xi}

This suggests that after forty years, the notion of matching the resources of the agency with the needs of the market has permeated business thinking, and companies would like to implement this concept. However, few companies have carried out this idea successfully.

The past fifteen years have seen only incremental refinements in many fundamental ideas that stem from a customer-orientation. Identifying target markets has become more precise, leading to micro-segmentation. Product and service positioning has become more sophisticated by using better statistical techniques. Thus, although there have been incremental improvements in the extent to which firms are customer-oriented, there has been little in the way of substantive innovations.

More recently, however, there has been a refocusing of American firms on the concept of a customer-orientation. In a survey of CEOs in industries including fabricated products, financial services, agribusiness, and consulting, respondents were asked to rate twelve factors as to how critical each is to the success of 21st-century enterprises. Only four criteria were rated as critical by more than half the respondents.

- First, and foremost, was a customer-orientation – rated as critical by 73 percent of the respondents.
- Related criteria followed this including:
 - Value-added quality focus (69 percent),
 - Flatter organizational pyramid (60 percent), and
 - The ability to formulate and communicate to staffers a corporate vision (55 percent).^{xii}

Given the importance of a customer-orientation, it is noteworthy that in the same survey only slightly more than half of the respondents suggested that their organization has undertaken the steps used to measure an organization's degree of customer-orientation. These three are:

- The integration of customer requirements in the product-development process,
- The ongoing measurement of customer satisfaction – and that such satisfaction is a key criterion for awards – and
- The existence among all employees and corporate groups of a strategy to ensure customer-orientation.^{xiii}

Transit agencies have generally followed other American businesses in the extent to which they have adopted a customer-orientation. For many years, many agencies paid lip service to being customer-oriented without developing the tools and infrastructure to support a customer-orientation.

With the recognition of the challenge of declining ridership, many agencies are again embracing the notion that a customer-orientation should play a central role in the agency's long-term success in retaining existing riders and attracting new ones. For example,

Houston Metro has begun a Customer Culture Program, the purpose of which is to enhance the culture of the organization to be more customer-focused, saying, "Creating and maintaining a strong customer culture is just good business practice."^{xiv}

It is unclear at this time, however, whether these agencies are continuing the practices of the past or are beginning to develop the organizational culture and structure essential to a customer-orientation.

The purpose of this chapter, therefore, is to explore the idea of a customer-orientation and how the use of market and customer research relates to an agency's customer-orientation. We first introduce measures to identify the extent to which an agency is customer-oriented as well as potential barriers to adopting a customer-orientation. Next, we present a model that examines an agency's readiness to become more customer- and market-oriented by using customer and market research to give you an idea how your transit agency can improve its effectiveness with customers.

Becoming Customer- and Market-Oriented

What Is a Customer or Market Orientation?

Just what is a customer- or market-orientation? While the idea of a customer-orientation has been bandied around for more than forty years, it is only in the last five years that research has been conducted that more clearly describes a customer and/or market-orientation and its key characteristics. According to this emerging literature, an agency with a customer and/or market-orientation has superior skills in understanding and satisfying customers.^{xv} The three principle features of a customer-orientation are:

- A set of beliefs that puts the customer's interest first.^{xvi}
- The ability of the organization to generate, disseminate, and use superior information about customers and competitors.^{xvii}
- The coordinated application of interfunctional resources to the creation of superior customer value.^{xviii}

The Role of Market and Customer Research

It is clear from the above definition that market and customer research is central to successfully adopting a customer or market-orientation.

First, having a customer focus involves obtaining information from customers about their needs and preferences. However, it can be argued that to be truly customer-oriented the research

must go beyond this simple form of customer research. This broader scope of research involves taking actions based on what has been termed “market intelligence” that considers:

- Exogenous market factors (e.g., competition and regulation) that affect customer needs and preferences, and
- Current and future needs of customers.^{xix}

This broader scope does not challenge the importance of customer research. Rather, it reflects an expanded, more strategic concern related to customers.

Second, having a market-orientation requires concerted action by various departments in an organization. The coordination of market intelligence is critical to this effort. This would suggest that a market-orientation entails:

- One or more departments engaging in activities geared toward developing an understanding of customers’ current and future needs and the factors affecting them,
- Sharing this understanding across departments, and
- The various departments engaging in activities designed to meet select customer needs.^{xx}

Market and customer research, therefore, serves an important role in developing a customer and market-orientation by:

- Generating information about customers’ current and future needs and the factors affecting them,
- Assisting an organization in reconciling these customer needs with what an organization is capable of and willing to present to the market, and
- Monitoring the effects of the activities designed to meet select customer needs in achieving organizational goals and objectives.

The Evolution of a Customer-Orientation

Becoming customer-oriented is not something that simply happens overnight. For an agency to become truly customer-oriented, a major shift in corporate philosophy must exist. Such a change in orientation is typically the result of a gradual, evolutionary process.

It has been suggested that a firm must pass through at least three stages to become customer-driven.^{xxi}

Stage One: Ignorance is Bliss

The first stage – bliss – would be exemplified by agencies that feel they offer good products and services because they have instituted strict quality control procedures. The agency tries to treat its customers fairly and wants to keep its customers satisfied. The blissful agency has a customer service function – usually the telephone information service that also provides routes and schedule information – that listens to and handles customer complaints. When a rider complains to a blissful agency, they will listen carefully to their questions and concerns and tell them they will consider this during the next service pick. They may send the complaining rider a ticket for a free ride.

The problem with a blissful agency is that this agency is in a reactive, status quo mode. By using its service representatives to monitor and distribute customer complaints, the agency is not recognizing that typically fewer than 5 percent of dissatisfied customers actually complain to the company itself. The remaining 95 percent simply stop riding when the opportunity presents itself. The blissful agency does not recognize that the cost of getting a new rider may be as much as five times the cost of keeping an existing one. Finally, the blissful agency is comfortable with its current transit operations and has not established an environment for innovation and improvements.

Most blissful agencies do little or no market or customer research. As a result, they do not really know or understand their customers. Although they can probably describe their target market, they have not attempted to develop long-term relationships with their existing customers. They think their riders are generally satisfied – citing internal statistics on performance, reliability, and safety. They believe that if they operate at a 98 percent on-time performance level, riders will continue riding indefinitely. At best, these agencies have some rough data on the frequency and causes of customer complaints resulting from on-board customer comment cards that contain the title – Customer Satisfaction Survey. Typically, however, blissful agencies do not use this data to fix the root problem that causes the complaints.

Stage Two: Awareness – Getting to Know You

The second stage in the transition to becoming customer-oriented is awareness that customer satisfaction is important. An aware agency is similar in many ways to a blissful agency but is more proactive. Aware firms not only say customers are important, they have actually begun to carry out practices that show they mean it. Many transit agencies have evolved to this stage.

Like blissful agencies, aware agencies have customer service departments or telephone information services. However, aware agencies will operate these services for extended hours. They may provide toll-free calling or they may have a bilingual staff. Above all, they publish the number in many sources and easy to find locations.

Aware agencies also take such proactive steps as conducting regularly scheduled customer satisfaction surveys. A truly aware agency has worked carefully to design this survey to measure customer needs and expectations from the customer's point of view as opposed to from the agency's perspective. Aware agencies pay attention to the results of the surveys and use the information to help improve its products and services.

Aware agencies are finding that while taking the proactive step of seeking information from their customers is useful, it is not enough. Ongoing customer satisfaction research at many of these agencies has shown almost no change in customer satisfaction. In some cases, despite improvements to products and services, customer satisfaction has declined. The telephone information lines and customer satisfaction surveys used by aware firms continue to represent "after-the-fact" attempts to measure or deal with sources of satisfaction or dissatisfaction. This represents the equivalent of attempting to put out a grease fire once it has started. Such "after-the-fact" efforts are unlikely to result in significant and long-lasting improvements in customer satisfaction. A much more comprehensive approach must also be pursued to achieve true customer satisfaction and loyalty.

Stage Three: Commitment – All the Way

The third stage – committed – is defined as agencies that realize that achieving customer satisfaction does not result from simply doing the traditional things better. Committed agencies recognize that customers are a valuable asset and source of innovation. Committed agencies have actively developed mechanisms for customer involvement and participation in decision-making comprehensively throughout the organization.

Committed agencies take a long-range view of their customers, viewing them as valuable assets. Thus, they recognize that customer retention is at least as important as customer acquisition, if not more so. Committed agencies also use the term "customer" broadly and include more than riders. Committed agencies also include potential riders, those that are never likely to ride but provide support through taxes and otherwise, and key stakeholders such as employers, businesses, local municipalities, etc. as customers. Committed agencies use market and customer research extensively, relying on a variety of methodologies to collect this intelligence. Clear systems are in place to distribute this intelligence throughout the organization.

How Customer-Oriented Are You?

So how customer-oriented are you? The simple questionnaire on the next page is presented to help you gain an understanding of the extent to which businesses are market-oriented. It also can serve as a tool by which these businesses can measure changes in market-orientation as they introduce intervention programs. We have adapted it to reflect the typical environment and organizational structure in which transit agencies operate.

The "Customer-Orientation" questionnaire examines specifically:

- The degree to which a firm generates market intelligence, including the collection and assessment of both customer needs and preferences, and the forces that influence the development and refinement of those needs.
- The process and extent of marketing information exchange – that is dissemination of information – within an organization.
- The responsiveness of an organization to the intelligence that is generated and disseminated.^{xxii}

The "Customer-Orientation" questionnaire consists of thirty-two scale items and is illustrated in Exhibit 1. You can take this quiz to learn how customer-oriented your agency is. Simply rate your agency on each item using a five-point scale where "1" means this item does not describe your agency at all and "5" means this item describes your agency very well. The higher your total score – a completely customer-oriented firm would have a score of 160 – the more customer-oriented you are. You can also use the subtotal scores to identify those areas that may be factors in achieving the extent of customer-orientation you want.



EXHIBIT 1
HOW CUSTOMER-ORIENTED ARE YOU?
A "CUSTOMER-ORIENTATION" QUESTIONNAIRE

| | Item Score 1 = "Does Not Describe At All" 5 = "Describes Very Well" |
|---|---|
| Intelligence Generation | |
| 1. We talk with or survey customers at least once a year to find out what products or services they will need in the future. | |
| 2. Individuals from our operations and planning departments interact directly with customers to learn how to serve them better. | |
| 3. In this agency, we do a lot of market and customer research. | |
| 4. This agency is quick to detect changes in customers' preferences for products and services. | |
| 5. We often talk with or survey those who can influence current and potential riders (e.g., employers, businesses, etc.). | |
| 6. We collect industry information by informal means (e.g., attending conferences, lunches with industry friends). | |
| 7. We survey customers at least once a year to assess the quality of our products and services. | |
| 8. In our agency, intelligence on our operating environment is generated independently by several departments. | |
| 9. We are quick to detect fundamental shifts in our industry (e.g., technology, regulation, and competition). | |
| 10. We periodically review the likely effect of changes in our operating environment (e.g., regulation) on customers. | |
| Intelligence Dissemination | |
| 11. A lot of informal "hall talk" in this agency concerns changes in our operating environment. | |
| 12. We have interdepartmental meetings at least once a quarter to discuss market trends and developments. | |
| 13. Marketing personnel spend time discussing customers' future needs with other functional departments like service planning and operations. | |
| 14. Our agency periodically circulates documents (e.g., reports and newsletters) that provide information on our customers. | |
| 15. When something happens in our operating environment, the whole agency knows about it within a short period. | |
| 16. Data on customer satisfaction are disseminated at all levels in this agency on a regular basis. | |
| 17. There is considerable communication between marketing and planning or operations concerning market developments. | |
| 18. When one department finds out something important about our operating environment, it is quick to alert other departments. | |



EXHIBIT 1
HOW CUSTOMER-ORIENTED ARE YOU?
A "CUSTOMER-ORIENTATION" QUESTIONNAIRE

| | Item Score 1 = "Does Not Describe At All" 5 = "Describes Very Well" |
|---|---|
| Responsiveness | |
| 19. It does not take us long to decide how to respond to changes in our operating environment. | |
| 20. Principles of market segmentation drive the development of new products or services at this agency. | |
| 21. We do not ignore changes in our customers' product or service needs because of internal or external pressures. | |
| 22. We periodically review our product / service development efforts to ensure they are in line with what customers want. | |
| 23. Our service plans are driven more by market research than by technological advances. | |
| 24. Several departments get together periodically to plan a response to changes taking place in our business environment. | |
| 25. The services and products we offer depend more on real market needs than on internal politics or other external political pressures. | |
| 26. If a major change occurs in our business environment, we would implement a response immediately. | |
| 27. The activities of the different departments are well coordinated. | |
| 28. Customer complaints are listened and responded to. | |
| 29. If we come up with a great marketing plan, we are able to implement it in a timely fashion. | |
| 30. We are quick to respond to significant changes in our operating environment. | |
| 31. When we find out that customers are unhappy with the quality of or service, we take corrective action immediately. | |
| 32. When we find that customers want us to modify a product or service, we make concerted efforts to do so. | |
| Scoring Instructions: | |
| A. Intelligence Generation Score: Sum items 1 – 10. | |
| B. Intelligence Generation Discrepancy Score: A perfect Intelligence Generation Score is 50. Subtract A from 50. | |
| C. Intelligence Dissemination Score: Sum items 11 – 18 | |
| D. Intelligence Dissemination Discrepancy Score: A perfect Intelligence Dissemination Score is 40. Subtract C from 40. | |
| E. Responsiveness Score: Sum items 19 – 32 | |
| F. Responsiveness Discrepancy Score: A perfect Responsiveness Score is 60. Subtract E from 60. | |
| G. Total Market Orientation Score: Sum items A – C | |
| H. Market Orientation Discrepancy Score: A perfect Market Orientation Score is 160. Subtract G from 160. | |
| Source: Adapted from MARKOR, a Measure of Market Orientation developed by Ajay Kohli, Bernard Jaworski, and Ajith Kumar published in the <i>Journal of Marketing Research</i> (November 1993), pp. 467 - 477. | |

Barriers to a Customer-Orientation

There are several barriers to becoming more customer-oriented. However, these barriers are relatively simple and solvable.

- **Commitment is limited to perceived constraints.** Top management at the agency is committed to serving the needs and expectations of the customers but only if those needs and expectations can operate within the constraints of offering traditional public transportation services or within a certain political climate or under certain budgetary constraints.
- **No market mentality.** Most functional areas in transit agencies do not understand the notion of being truly driven by the market / customer needs. Few agencies have a formal marketing function and if one exists, it may or may not have a marketing plan. Even where a marketing plan exists, it is frequently not well communicated to those who must carry it out – telephone information operators, drivers, maintenance crews, and others.
- **No market-responsive behavior.** Most employees do not know how to translate their classic functional responsibilities into market-driven, customer-responsive actions. Moreover, they do not know where and how to look at the market from their functional perspective and do not recognize opportunities in the market.
- **Lack of intra-agency communication.** Many functional areas do not understand the roles of the other functions in the agency. For example, how familiar are most marketing personnel with the daily functions of the service planner and vice versa. As a result, they do not know what information they should send to the other functions about the customer and what information they should seek from those other areas. Often, each functional area operates from a defensive position, protecting the integrity of their goals, budgets, and plans.
- **Lack of front-line input.** Employees in each functional area do not have meaningful participation in the strategic direction of the agency although they are often closest to the operational characteristics of the marketplace. For example, how many agencies have drivers and/or telephone information personnel sit in on strategic planning or marketing planning meetings?^{xix}

Even agencies who have top management support for a market-driven, customer-orientation and who have tried to integrate a customer-orientation through every level of the organization have met with variable levels of success. All too often the solutions they have tried are incomplete because they:

- **Deal just with the strategic issues at senior management levels.** They have outlined, tested, and defined the goals and objectives. However, they have identified few specific actions. Moreover, they do not ask employees to identify specific actions to reach these goals and objectives.
- **Focus on either academic ideas** – for example, quality circles – **or functional behavioral skills** – for example, customer service – and do not integrate them.
- **Are often focused on the functional areas** as though they are independent as exemplified by many classic training programs used.
- **Offer a “canned” solution** that ignores valuable ideas from people with years of experience.

- **Do not provide for a comprehensive plan** for designing, developing, carrying out, and rewarding a cohesive, market-driven system.
- **Ignore the importance of synchronizing the strategic and/or marketing plans** with the people who carry them out.
- **Operate as a “one-shot deal”** with employees participating in a single training program or making a single change to the organizational structure with the expectation that this will result in a long-run change in the organization's values and beliefs.
- **Create an expectation that results and rewards will be immediate.**

Becoming Customer-Oriented

Having identified the features of a market-driven, customer-oriented agency and also examined some barriers to becoming such an agency, it is possible to outline some basic requirements for achieving this goal.

Develop Customer-Oriented Values

First, the agency must embrace a set of customer-oriented values and beliefs that top management supports. Top management support is so important that Theodore Levitt, in his seminal statement of the marketing concept argued that customer needs must be the central focus of the firm's definition of its business purpose and that this is the primary responsibility of the firm's senior management.

The organization must learn to think of itself not as producing goods and services but as buying customers, as doing the things that will make people want to do business with it. And the chief executive himself has the inescapable responsibility for creating this environment, this viewpoint, this attitude, this aspiration.^{xxiv}

This means that the customers determine quality and service. The agency defines itself both in terms of the customer needs it is committed to service and its distinctive competence in satisfying those needs -- that is its way of delivering value to the customer. These basic beliefs and values must include a commitment to quality and service as defined by customers. This commitment must come from top management. If top management does not put the customer first they have, by definition, put something else first. Everyone else in the organization will know what that is and behave accordingly. Top management at agencies must give clear signals and establish clear values and beliefs about serving the customer.

Commit to Change

Next, changing to a customer-driven orientation should be viewed as a long-term evolutionary process. Only newly created organizations, or ones facing severe crises, are open to major change occurring at once. Change is always discomfiting. What is a small change to some in an agency may be a major change to others. Even seemingly small, isolated changes can have unexpected multiplier effects. Simply considering organizational change is not without its consequences. Therefore, the most fruitful course to follow is to carry out change incrementally.

Gain Full Organizational Involvement

Third, developing a customer-driven orientation must involve all organizational levels and areas. Most important, it should not be limited to staff personnel. Those ultimately responsible in the daily lives of customers – the front-line – must be involved. If all levels are involved, the importance of a customer-driven orientation is unmistakable. An elegantly conceived strategy developed by top management and passed down to subordinates will not achieve instant – if ever – success. Employees who actually contribute to customer satisfaction must execute change efforts. This means moving beyond simple participatory management. Real delegation and empowerment must occur so employees have a stake in the agency's long-term success. An organizational culture that thrives on change and improvement, and rewards all employees for their contributions must be established.

Commit to Training and Development

Fourth, developing a customer-driven orientation requires extensive training and development of the work force. Everyone must understand how his or her job contributes to customer satisfaction. Employees must not only know their roles, they also must recognize that they can change their jobs to enhance customer satisfaction.

Monitor Performance

Finally, a customer-driven orientation must be evaluated, monitored, and reinforced. Commonly, this has meant conducting "complaint analysis" or regularly monitoring customer attitudes by using surveys. While these efforts are a start, they must also be translated into internal systems where behavioral change in the agency is rewarded at all organizational levels, intrinsically or extrinsically.

An Agency Contract for a Customer and Market Orientation

Exhibit 2 summarizes the central ideas of an agency that is truly customer and market-oriented.



EXHIBIT 2

A CONTRACT FOR DEVELOPING A CUSTOMER AND MARKET ORIENTATION

GIVEN:

Marketing is an agency wide activity.

THEREFORE:

There is a need for the generation of, dissemination of, and responsiveness to market information throughout the agency.

THE CUSTOMER AND MARKET RESEARCH FUNCTION MUST:

Help all internal customers hear the voice of the market by providing information and the support necessary to use it effectively in the decision-making process.

AS A RESULT:

The quality of agency wide marketing is enhanced.

THIS IS IMPORTANT BECAUSE:

The quality of agency wide marketing affects customer perceptions of an agency's long-term commitment to providing high value in its product / service offerings.

AND:

Customers' commitments arise from their perceptions of the agency's commitment to providing high value in product / service offerings.

Research Readiness

The generation and dissemination of market and customer research, and the responsiveness of an agency to this information is a major component of a customer-orientation. Integrating a market and customer research function into an agency commonly represents a major change in the corporate culture. As with becoming customer-oriented, the most fruitful course to follow is to carry out change incrementally. Incremental changes that produce modest improvements enhance credibility and can be used to launch further change.

Ideally, the introduction of a market and customer research function at an agency should go hand in hand with the formation of other agency systems. For example,

As part of a state-mandated audit, Houston METRO completed an evaluation of the entire agency's organization and functions. The consulting organization doing the evaluation uncovered and emphasized the need for METRO to become more market-oriented. To accomplish this, a greater emphasis was placed on the need to use market research in the planning process. The board supported this recommendation, feeling that METRO should give the development of new transit services a higher priority.

As a result, in July 1993, the agency moved the market research function from the marketing department to the department of Service Development. The new Market and Service Research, Analysis, and Evaluation division was developed around the idea of basing service expansion, contraction and productivity modification, marketing, and other authority decisions on a market-driven basis. This new division consolidated the data collection activities previously spread among three different departments. Under this reorganization, METRO considers the Market and Service Research, Analysis, and Evaluation division as a blend of analytical activities that will drive cost-effective, market-responsive decisions. Moreover, they believe that this move will enhance the ability of the market research function to support service planning and development, while still continuing to provide information required for developing and refining effective marketing programs.

Agents of Change

Typically, transit agencies do not recognize market and customer research as central enough to warrant such a comprehensive approach. Unfortunately, this situation becomes a self-fulfilling prophecy, reinforcing the idea that market and customer research does not have much to contribute and should not be given much prominence and support. To overcome these beliefs, researchers and other champions of market and customer research must become agents of organizational change. In this role, they must:

- Convey to others in the agency the principles and concepts of a strong market and customer research function,
- Demonstrate how it addresses important agency needs, and
- Reduce barriers between those who provide and those who use information.

Key Questions

Successfully introducing organizational change requires an understanding of two components:

- The issues, and
- The people – as individuals and as groups – who will be affected by the change.

In deciding whether to introduce change, the change agent should ask six key questions.^{xxv}

- Have top managers agreed that there is a need for the proposed change? Has the agency designated champions – that is, has the agency given a specific person or group both the responsibility and the authority to make the change happen? The agency must answer “yes” to both parts of this question or continuing with the proposed change at the present time is probably not appropriate.
- Who has participated in the planning for the change and who has not? All parties likely to be affected by the change should be consulted or their opinions solicited.
- What, if anything, does the change modify or replace? How will the personnel make the transition from the old to the new? Attention must be paid to help those affected to change their current attitudes and behaviors.
- Who will benefit immediately from the change and who will benefit in the longer term?
- Who will suffer immediately from the change and who will suffer in the longer run?
- How will the change affect major relationships in the organization? These relationships include individual job relationships plus organizational, social, and other informal contacts.

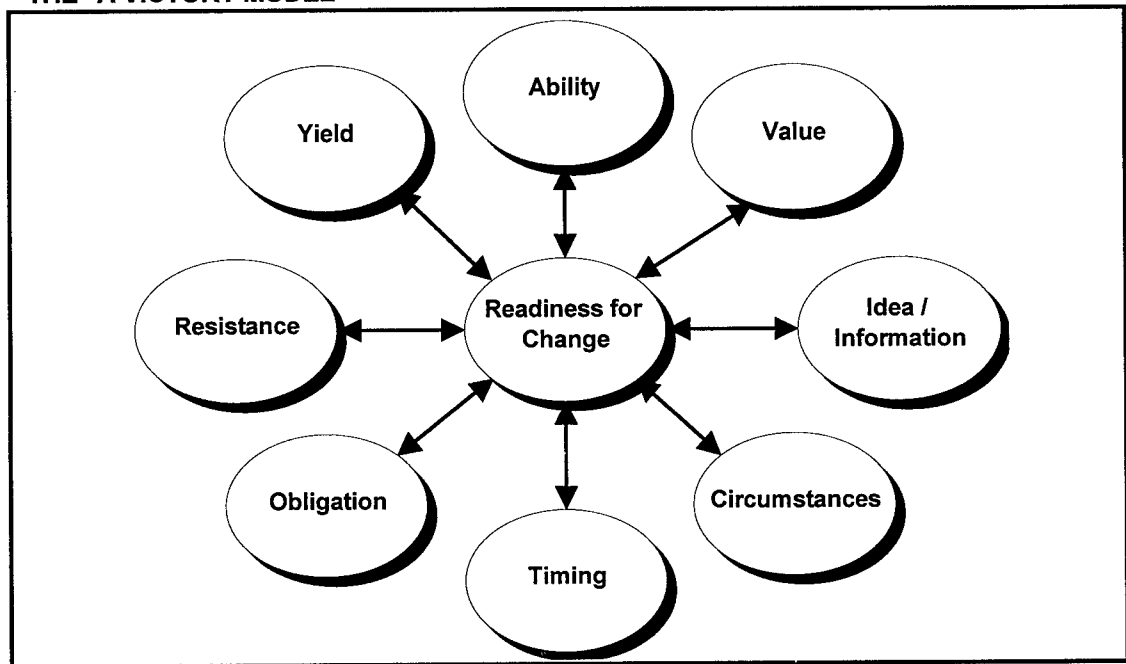
The “A Victory Model”

Armed with a “yes” to the first question – “Is there a need for change?” – and having considered thoroughly the answers to the other five, the change agent can determine whether it is time for introducing organizational change and appropriate strategies for doing so. A planning model – the *A Victory Model* – is a useful tool to focus the change agent’s attention on what is required to implement change in a market and customer research function successfully. It has been used in a variety of organizational settings for many years.^{xxvi} Both public and private health and social service organizations have used it extensively as a guide for improving the use of research, particularly research that evaluates marketing programs.

Following are the basic components of the *A Victory Model* as developed by Vincent Barabba and Gerald Zaltman for developing what they call an “Inquiry Center.” It has been adapted to address the issues it raises for developing a research function in a transit organization.^{xxvii}



FIGURE 1
THE "A VICTORY MODEL"



- **A = Ability.** What are the agency's abilities and inabilities with respect to accepting changes in the research function? Are the necessary resources and capabilities – staff, training, facilities, funds, etc. – available to carry out, sustain, and evaluate the changes? For example, transit managers, unfamiliar with market research, may need training in how to develop assumptions, formulate issues, and interpret statistics to use market and customer research. These same skills also are helpful in creating a problem-sensing and a problem-solving orientation among managers.
- **V = Values.** How compatible are the values, norms, and attitudes required by the proposed change with current attitudes and practices? Many transit managers consider the idea of planning ahead for future research needs as foreign to their activities. Some may prefer a research function that promotes better thinking. Others are looking for better decisions. Still others may want better products or services, or more satisfied customers. Focusing on any one of these will result in a different orientation within the research function. Each requires a somewhat different supportive value from top management.
- **I = Idea / Information.** How clearly understood are the nature of and reasons for the proposed change in the research function? One type of change in the research function involves an established feature of the research function that is perceived as new by current or new information users – for example, broadening an annual survey of transit users to include nonusers to assess their satisfaction with a system they do not use. Alternatively, this functional change could be an actual change the researcher would like current information users to accept. In each case, the change has attributes that affect its acceptance. These attributes are features of the research function that should be given special attention as individuals in an agency are encouraged to use information.
- **C = Circumstances.** What factors or features in the organization may affect the acceptance and implementation of a research function? Have there been significant personnel changes? Recent reorganizations? How does the structure of a company affect its response to new

ideas? Most transit agencies are highly centralized and formal in their procedures. They may be slow to decide on the proposed innovation but quick to embrace it once they decide. The reverse is true for agencies that are decentralized and less formal.

- **T = Timing.** How ready is the organization to consider the proposed change? Is it an “idea whose time has come?” Are current circumstances advantageous for introducing the change? For example, a merger of transit agencies to form a regional agency might be an excellent time to propose a new role for marketing research. Alternatively, as a transit agency moves into a previously unserved geographic area, a new role for marketing research can be developed.
- **O = Obligation.** What is the perceived need for change among relevant decision-makers and potentially influential “champions?” What is their level of commitment? Here, the issue is whether promises to various constituencies might be used to support the case for an expanded role for marketing research. For example, marketing research’s role in voter surveys as part of the process of gaining approval for a regional transit authority or expanded service might be the basis for arguing that research should receive additional consideration because of these past successes.
- **R = Resistance.** Who – individuals or groups – are likely to be resistant to change? Frequently, research is threatening to individuals. Much like individuals resist going to doctors and dentists because of the fear of hearing bad news, transit managers may prefer not to know how well their system is operating. The task is to convince individuals harboring these concerns that research can be useful in identifying potential trouble situations when they are still manageable.
- **Y = Yield.** What are the benefits of the change for those who are asked to approve it, implement it, or who are otherwise affected by it? Can these benefits be measured? Because research so frequently deals with uncertainty, benefits are not easily quantifiable. However, success stories suggest that research can yield substantial benefits. It is critical that such benefits be measured and documented. For example, research undertaken prior to a service change that predicts reactions to the change should be compared with actual results. Of course, forecasting is one of the most challenging tasks in research, so it is important that expectations are realistic.

Taking the Challenge

Clearly, to address the challenge of declining ridership, transit agencies must adopt a market-driven, customer-orientation. Central to this orientation is the generation of, dissemination of, and responsiveness to market and customer research. The chapter presented a “quiz” that allows agencies to assess their overall customer-orientation and also identify specific areas that may be barriers to fully adopting a customer-orientation.

Presently, transit agencies – like many businesses – are still struggling with how to embrace a customer-orientation. For most, it requires organizational change – often fundamental change. Introducing change in any organization requires careful planning and a sensitivity to the variety of forces affecting the acceptance or rejection of new ideas and practices. This is especially true when the change involves something as fundamental and important as how the organization uses market and customer research in decision-making.

The first step in beginning to integrate market research into transit decision-making is to obtain a clear commitment from top management to improve the firm’s existing market intelligence or market research function. Next, the agency must identify a change agent. The role of the change agent is to build

support for a market and customer research function with an agency. Notably, the change agent must identify those individuals and/or groups of individuals that are most likely to be affected by the change and/or who are most resistant to the change and address their needs and concerns. Since most agencies do not have a formal research function, this responsibility will likely fall on a manager or managers in another functional area.

The change agent must consider important questions and criteria when introducing change. Knowing the answers to these questions can simplify the process of improving the quality of decision-making by improving the quality of the market and customer research function.



Going Public with Customer Research

The Current State-Of-The-Practice in Market and Customer Research as Conducted by Transit Agencies

TOOLBOX

- Nickels, Dimes, & Quarters: How Much Does Transit Need to Change?
- Journey to Work: Market Research as Your Agency's Primary Mode
- Rusty Parts & Squeaky Wheels: Barriers to the Increased Use of Research in Transit
- On-Time Performance & Service Quality: Market and Customer Research in Transit – Your Quality Improvement Tool

How Much Does Transit Need to Change?

Given the importance of market and customer research to a customer- and market-orientation, just how far does transit need to travel to develop an effective and efficient market and customer research function? Comparing the use of market and customer research in public transportation with its use in the private sector and in other public agencies provides insight into how much transit needs to change.

Private sector demand for technical assistance from market research has increased over the past several years. Businesses seek and use competitive intelligence and marketing information to develop strategies to improve quality and retain customers. Moreover, rapid changes in the marketplace and business environment have sparked a more rapid rise in the demand for research support. To keep up with this demand, a variety of methods has been developed to gather pertinent and reliable information. Moreover, market research functions have become integrated into the organizational structure and strategies to increase the effective use of market and customer research have been developed.

Despite their inherently different missions, public agencies face similar demands as businesses for improving services while becoming more cost efficient. However, conventional wisdom has maintained that public sector issues are too complex, political, emotional, amorphous, or simply too irrational to lend themselves to the type of analysis commonly used by private business. Several factors contribute to this belief. First, government services – notably transit services – are labor-intensive and are produced and consumed simultaneously.^{xxviii} In addition, consumers of these types of services will typically judge a service on their reaction to the delivery agent as much as to what is delivered. Finally, there is a great deal of confusion over who the actual “customer” is.

Because of these factors, public sector agencies often lag behind their private sector counterparts in their use of market and customer research to guide strategic decisions. Moreover, public transportation industry lags behind other public sector agencies – notably electric and gas utilities. Even when transit agencies do research, the methods used are limited in scope and provide little insight into the real issues and challenges facing the industry today.

While there is some truth to these beliefs, the picture may not be so bleak as many feel. It is the purpose of this chapter to examine the “state-of-the-art” in research as conducted by business today. This will be compared with the current “state-of-the-practice” in transit industry research. Barriers to the increased use of market research will be identified. Finally, the important role market and customer research can play in transit decision-making will be defined.

The Use of Market and Customer Research in Business

The Explosive Growth of Market Research in Business

Unquestionably, market research is a growth industry. The need for market and customer research has exploded with the rapidly expanding number of products and types of services introduced into the market by the private sector. A survey of marketing research sponsored by the American Marketing Association showed that of 251 companies interviewed in 1993, only 8 percent do **not** do market research.^{xxix} Since 1985, real expenditures on market research – after adjusting for inflation – more than doubled! This growth has continued even during recessionary periods.

In 1993, 171 of the companies interviewed by the American Marketing Association spent a total of \$424 million dollars on research activities, up 7 percent from 1988. Average annual budgets range from as little as \$82,000 for small companies to as much as \$7 million for large consumer products firms. Among the 19 public utilities reporting, average budgets ranged from \$334,000 for smaller utilities to nearly \$4 million for the larger utilities. On average, reporting firms had budgets of \$1.35 million in 1993. This growth is largely a consequence of economic and social changes that have made better planning and marketing imperative.

With marketing the new priority, marketing research is the rallying cry. Companies are frantically trying to get their hands on information that identifies and explains the needs of powerful new consumer segments now being formed. Kroger Co., for example, holds more than 250,000 consumer interviews a year to define consumer wants more precisely. Some companies are pinning their futures to product innovations, others are rejuvenating timeworn but proven brands, and still others are doing both.^{xxx}

Not only are companies that always did market research doing a great deal more, but the breadth of research activities also continues to expand. Consider the following examples:

- Senior management is looking for more support for its strategic decisions. Researchers are focusing on acquisition and competitor studies, segmentation and market structure analyses, and basic strategic position assessments.
- Market research is being used by “nontraditional departments” – that is, departments other than marketing, and research and development. Legal departments now routinely use market research evidence to support positions. Corporate Affairs departments use market research to understand shareholders’, bankers’, analysts’, key stakeholders’, and employees’ attitudes

toward the company. Service departments continuously audit service delivery capability and customer satisfaction.

- Entire industries that used to be protected from competition – airlines, financial institutions, cable television, telephone – are being deregulated and are finding that market and customer research provides an important source of information on strategies to overcome product proliferation, advertising clutter, and high marketing costs resulting from more sophisticated customers and aggressive competitors.

In many companies and industries, market and customer research is a pervasive activity, viewed as the function that plans for, collects, and analyzes data relevant to decision-making and the communication of the results of this analysis to management. Exhibit 3 illustrates the nature of the research conducted by businesses today. While there has been a general increase since 1988 in all types of research being conducted, the greatest increases occurred in the number of firms doing studies on buyer behavior, notably those conducting research on product satisfaction and those doing segmentation research.



EXHIBIT 3 BUSINESS RESEARCH ACTIVITIES

| | % Doing | | % Doing |
|---|------------|---------------------------------|------------|
| A. Business and Corporate | | D. Distribution Studies | |
| 1. Industry/market characteristics | 92% | 1. Channel performance | 39% |
| 2. Market share analyses | 85 | 2. Channel coverage | 31 |
| 3. Internal employee studies | 72 | 3. Export & international | 32 |
| 4. Acquisition / diversification | 50 | 4. Plant / warehouse location | 25 |
| B. Pricing | | E. Promotion | |
| 1. Demand analysis | | 1. Media research | 70% |
| a. Market potential | 78% | 2. Copy research | 68 |
| b. Sales potential | 75 | 3. Advertising effectiveness | 67 |
| c. Sales forecasts | 71 | 4. Public image | 65 |
| 2. Competitive pricing | 71 | 5. Motivation research | 56 |
| 3. Cost analysis | 57 | 6. Sales promotions | 47 |
| 4. Price elasticity | 56 | 7. Competitive advertising | 43 |
| 5. Profit analysis | 55 | 8. Sales force compensation | 34 |
| C. Product | | F. Buying Behavior | |
| 1. Concept development | 78% | 1. Product satisfaction | 87% |
| 2. Product testing | 63 | 2. Segmentation studies | 84 |
| 3. Test markets | 55 | 3. Brand awareness | 80 |
| 4. Brand name testing | 55 | 4. Purchase behavior | 80 |
| 5. Competitive product | 54 | 5. Purchase intentions | 79 |
| 6. Packaging design | 48 | 6. Brand preference / attitudes | 77 |
| Source: Thomas C. Kinnear and Ann R. Root (eds.), <i>1994 Survey of Marketing Research</i> . Chicago: American Marketing Association. | | | |

Customer Satisfaction Research: A Critical Link

Customer research as it applies to customer retention efforts – notably customer satisfaction research – is one of the fastest-growing segments of the market research industry. The 1994 Honomichi Report of Marketing Research reported that customer satisfaction research is the fastest growing segment in the research industry – accounting for as much as 30 percent of all research dollars spent.

A study by John T. Mentzer, a professor in the Department of Marketing, Logistics, and Transportation at the University of Tennessee, looks at the use of customer satisfaction research in the private sector. He conducted a survey of 124 private sector companies to learn what is being done in customer satisfaction measurement and management.

All of the firms surveyed had some form of customer satisfaction research in place. Budgets for this effort ranged from as little as \$1,000 annually to more than \$500,000. Surprisingly, many firms surveyed had no specific amount budgeted for this task. The frequency with which customer satisfaction measurements are taken varied from annually (40 percent), to quarterly (27 percent), to monthly (30 percent).

Although, many firms report using more than one methodology to collect a variety of data from different customer groups, telephone and mail surveys represent the methodology of choice. Also popular are personal interviews and customer focus groups. Nearly all (98 percent) of companies responding use their current customers as the sampling frame for their customer satisfaction research. Less than one-third also includes noncustomers or former customers in their research.

Data analysis methods range from the widely used basic statistics to more rarely used multivariate analyses to provide greater insight into what the data means. Basic statistical methods might include cross tabulations, qualitative assessments, and descriptive statistics, such as means, standard deviations, and percentages. Studies that are more complex might include the use of regression analysis, factor analysis, content analysis, cluster analysis, discriminant analysis, and conjoint analysis.

Similarly, the degree of sophistication in using theoretical models to guide the development of customer satisfaction measures varies widely. Nearly half of all companies surveyed stated they did not know what theoretical base their company used to measure customer satisfaction. Approximately one out of four of the responding firms use the SERVQUAL model of service quality measurement developed by Zeithaml, Berry, and Parasuraman^{xxxi}.

Most of the firms distribute the results from customer satisfaction research efforts widely. Only a few companies (6 percent) do not distribute the results of the research to their employees. Top management has the most accessibility to customer satisfaction information. However, other organizational levels and departments also have extensive access to the information – 92 percent of responding firms make the information available to middle management, 75 percent to staff personnel, and 65 percent to line personnel. Wide distribution to and use by many departments within a firm is more limited. Marketing, sales, and research are the departments within these responding firms with the greatest access to customer satisfaction information.

Customer satisfaction research is an important component of these firms' planning and strategy development efforts, and often, is an integral part of the company's mission statement. Responding firms use results of customer satisfaction research primarily to revise products, services, and corporate plans; assess their competitive position; and target new customers. Most firms include statements regarding customer satisfaction (75 percent), product or service quality (65 percent), and market leadership (60 percent) in their mission statements. Fewer include statements regarding customer service (56 percent) and a customer-orientation (49 percent).

The Growing Use of Customer Research in the Public Sector

Recognizing the importance of the marketing and customer research function, the use of market and customer research increasingly is entering the public domain. These new users often have very different purposes for conducting research and use the results from research in very different ways.

- A public utility conducts a research study to support a request for a rate change or the introduction of a change in service level. Results from the study are presented to a regulatory body.
- A nonprofit agency is developing a long-range plan regarding the use of key properties in support of current and proposed programs. Public meetings on the subject were highly emotional. The agency believed that the views expressed at the meetings did not represent the membership served by the agency. They conducted research to learn what a representative sample of the population felt about the proposed recommendations.
- A regional transit agency wants to build public support for the continuation of an experimental program involving "dedicated" bus lanes. Research proving the effectiveness of the program is to be presented to various public bodies and citizen groups.

Nineteen utilities responded to the 1994 Survey of Marketing Research conducted by the American Marketing Association. Their use of market research generally parallels that of business. However, their efforts are somewhat more likely to be concentrated in the areas of business / economic and corporate research, studies of buying behavior, and research on promotions. Perhaps due to the nature of the businesses they operate, they are less likely to conduct research on products, notably as it pertains to competitive studies, and distribution. This focus may change in the future as utilities become increasingly competitive with further deregulation.



EXHIBIT 4 RESEARCH ACTIVITIES OF NINETEEN UTILITIES

| | % Doing | | % Doing |
|---|------------|---------------------------------|------------|
| A. Business and Corporate | | D. Distribution Studies | |
| 1. Industry/market characteristics | 100% | 1. Channel performance | 47% |
| 2. Market share analyses | 94 | 2. Channel coverage | 20 |
| 3. Internal employee studies | 88 | 3. Export & international | 13 |
| 4. Acquisition / diversification | 69 | 4. Plant / warehouse location | 33 |
| B. Pricing | | E. Promotion | |
| 1. Demand analysis | | 1. Media research | 81% |
| a. Market potential | 100% | 2. Copy research | 87 |
| b. Sales potential | 88 | 3. Advertising effectiveness | 84 |
| c. Sales forecasts | 94 | 4. Public image | 80 |
| 2. Competitive pricing analysis | 77 | 5. Motivation research | 79 |
| 3. Cost analysis | 69 | 6. Sales promotions | 80 |
| 4. Price elasticity | 76 | 7. Competitive advertising | 26 |
| 5. Profit analysis | 69 | 8. Sales force compensation | 50 |
| C. Product | | F. Buying Behavior | |
| 1. Concept development | 75% | 1. Product satisfaction | 94% |
| 2. Product testing | 44 | 2. Segmentation studies | 100 |
| 3. Test markets | 65 | 3. Brand awareness | 73 |
| 4. Brand name testing | 31 | 4. Purchase behavior | 73 |
| 5. Competitive product | 27 | 5. Purchase intentions | 70 |
| 6. Packaging design | 19 | 6. Brand preference / attitudes | 60 |
| Source: Thomas C. Kinnear and Ann R. Root (eds.), <i>1994 Survey of Marketing Research</i> . Chicago: American Marketing Association. | | | |

This research clearly shows the recognition of the importance of customer research among businesses and by many in the public sector. They are using market and customer research for a variety of purposes in the private sector: planning, problem solving, and control.

- When used for **planning**, firms are using market research to identify market opportunities. The emphasis is on determining those opportunities that are viable and those that are not promising to the firm. Planning research provides estimates of demand so that management can better assess the resources needed to develop them.
- **Problem-solving** research is used by businesses to focus on short or long-term decisions they make with respect to specific elements of the marketing mix – product, price, place, and promotion.
- Businesses use **control-oriented** market research to help management keep abreast of trends in the marketplace and how well the firm is operating in that environment. Moreover, control-oriented market research helps management isolate problems. Exhibit 5 illustrates the types of questions private industry usually asks in each of these areas.



EXHIBIT 5 KINDS OF QUESTIONS MARKET RESEARCH ANSWERS

1. *Planning*

- A. What types of people buy our products / use our services? Where do they live? How much do they earn? How many of them are there?
- B. Are the markets for our products / services increasing or decreasing? Are there promising markets that we have not yet reached?
- C. Are the channels of distribution for our products / services changing? Are new types of marketing institutions likely to evolve?

2. *Problem Solving*

- A. Product / Service
 - i. Which of various product / service designs is likely to be most successful?
 - ii. What configuration (levels of attributes) for the product / service is likely to be most successful?
- B. Price
 - i. What price should we charge for our products / services?
 - ii. What is the likely effect of a price increase on demand / perceptions of value?
- C. Place
 - i. Where, and by whom, should our products / services be distributed?
 - ii. What kinds of incentives should be offered to encourage distribution of our product / service?
- D. Promotion
 - i. How much should we spend on promotion? How should it be allocated across products / services and to target groups?
 - ii. What combination of media – newspapers, radio, television, or magazines – should we use?

3. *Control*

- A. What is our market share overall? In each geographic area? By customer type?
- B. Are customers satisfied with our products / services? How is our record for service? Are there many returns? What is our rate of churn?
- C. How does the public perceive our company? What is our reputation within the industry or trade?

The Use of Customer Research in Transit

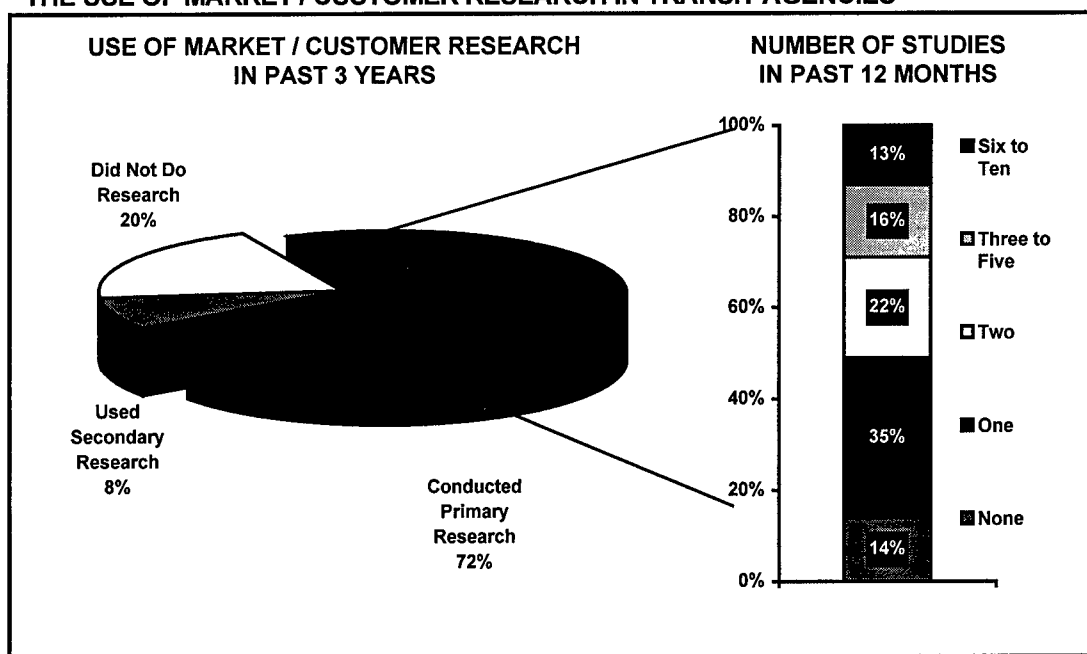
In contrast to the view that research is indispensable to the private sector, many working in and with the transit industry perceive that there is little use of market or customer research in transit. Moreover, many believe that the research conducted has been limited primarily to supporting and evaluating promotional activities. To understand the state-of-the-practice of market and customer research, a survey was completed among market research, marketing, planning and general managers at transit agencies in the United States and Canada. Together, 294 transit managers representing 233 agencies throughout North America participated in the survey. The primary purpose of the survey was to obtain a picture of the current use of customer research in transit. Specifically, information was sought on:

- The extent of past and current market and customer research in transit agencies and upcoming research plans,
- The purposes of transit market and customer research studies and methodologies used,
- The practical use of market and customer research results,
- Attitudes toward market and customer research, and
- Potential barriers to the integration of market and customer research in transit management.

Market and customer research efforts in transit are widespread. Most of the agencies surveyed (72 percent) report they had conducted market and/or customer research in the past three years. However, these research efforts are limited in scope and frequency. Most agencies (56 percent) had conducted only one or two studies in the past year. Moreover, the percent of transit agencies conducting market research is much less in the private sector and even among other public utilities.



FIGURE 2
THE USE OF MARKET / CUSTOMER RESEARCH IN TRANSIT AGENCIES



Research efforts in the transit industry are largely concentrated within larger agencies. Seven out of ten large agencies (those agencies serving areas with populations over 500,000) had completed at least one research study in the past year. More than half of the large agencies reported doing three or more studies in the past twelve months. On average, large agencies conducted seven studies in the past twelve months.

On the other hand, less than half the small agencies (those serving areas with populations of less than 200,000) had conducted research in the past year. Among those small agencies who conducted research in the past year, the majority (64 percent) had conducted only one study.



EXHIBIT 6 USE OF MARKET RESEARCH BY AGENCY SIZE

| | % Conducted | | Average Number In Past Year |
|---|--|--------------|--------------------------------|
| | Primary Market Research In Past 3 Years | In Past Year | |
| Large Agencies | 83 | 69 | 7 |
| Mid-Sized Agencies | 73 | 56 | 2 |
| Small Agencies | 62 | 45 | 1 |
| <i>Agency size defined by population served as follows: Large serving populations over 500,000; Medium serving populations between 200,000 and 500,000; Small serving populations less than 200,000</i> | | | |

The scope of market and customer research efforts in transit is limited and is seldom used to direct major policy decisions. Most research efforts at transit agencies are directed at assessing customer attitudes or satisfaction with services and public opinion about agencies' performance or image (Figure 3). That is, the purpose of research is largely limited to its control function and serves primarily to confirm past decisions. Small and mid-sized agencies limit their research efforts to measuring customer satisfaction – general agency performance and specific transit services – and planning routes and schedules. Large agencies, on the other hand, more often use market research to measure market characteristics and trends, develop or test advertising and marketing concepts, evaluate or track the success of advertising or promotional programs, develop or test new transit product or service ideas, and to estimate fare elasticity.

Research seldom is used to develop or test policies, measure voter support for agency plans or tax / bond initiatives, estimate fare elasticity, or develop or test advertising or marketing concepts. Also, transit agencies are much less likely than businesses and utilities to use research to identify and understand market segments – an important strategy for the development of new products and services as well as effective advertising and promotion campaigns.

Transit agencies rely heavily on on-board data collection efforts (Figure 4). Most agencies who had conducted research in the past year used on-board surveys. In many instances, the primary purpose of this research was to gather origin and destination information. Much of this data is required for federal reporting requirements or other purposes. Agencies often "tack on" other research questions to these efforts. The methods frequently employed by other businesses and public utilities – telephone surveys, in-person interviews, and focus groups – are used less often. The implication of limiting research efforts to on-board surveys is a failure to understand the needs, wants, and expectations of the many other stakeholders public transit must serve. Moreover, the amount and type of information that agencies can gather through an on-board survey effort are limited. Finally, without careful attention to sampling and data collection procedures, the reliability of data from on-board surveys is suspect.



FIGURE 3
PURPOSE OF AGENCY MARKET RESEARCH IN THE PAST THREE YEARS

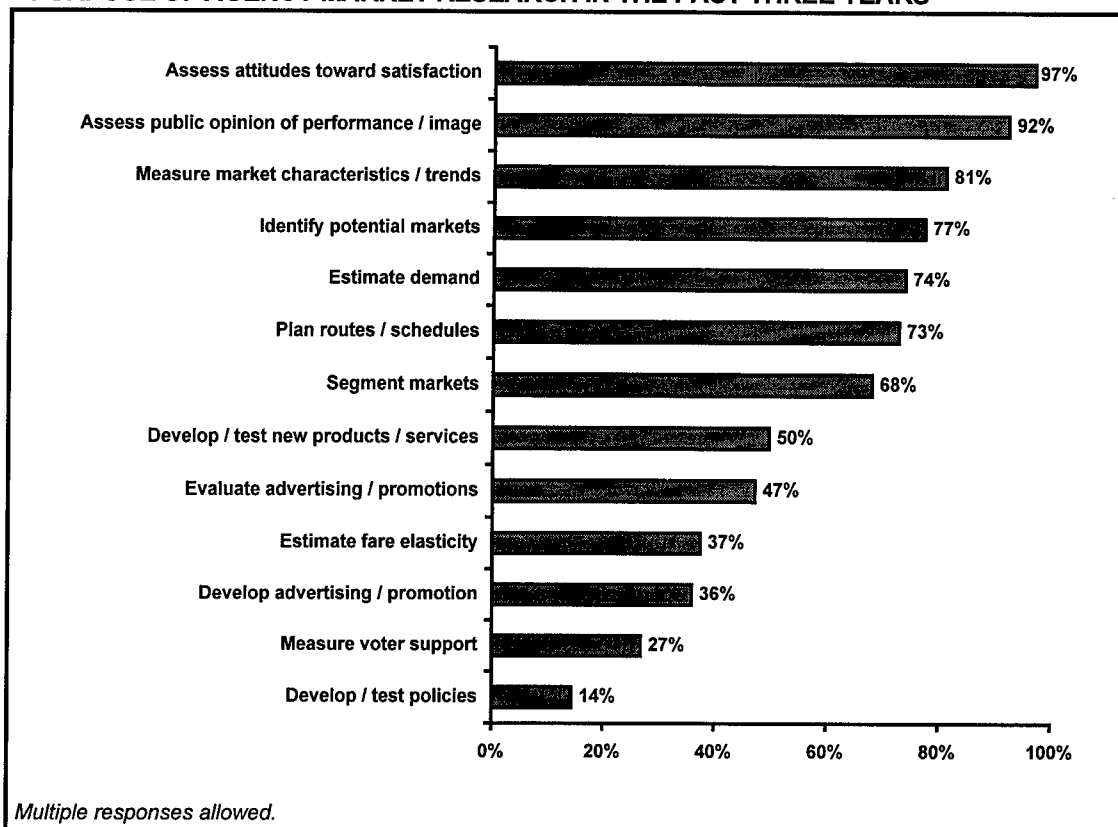
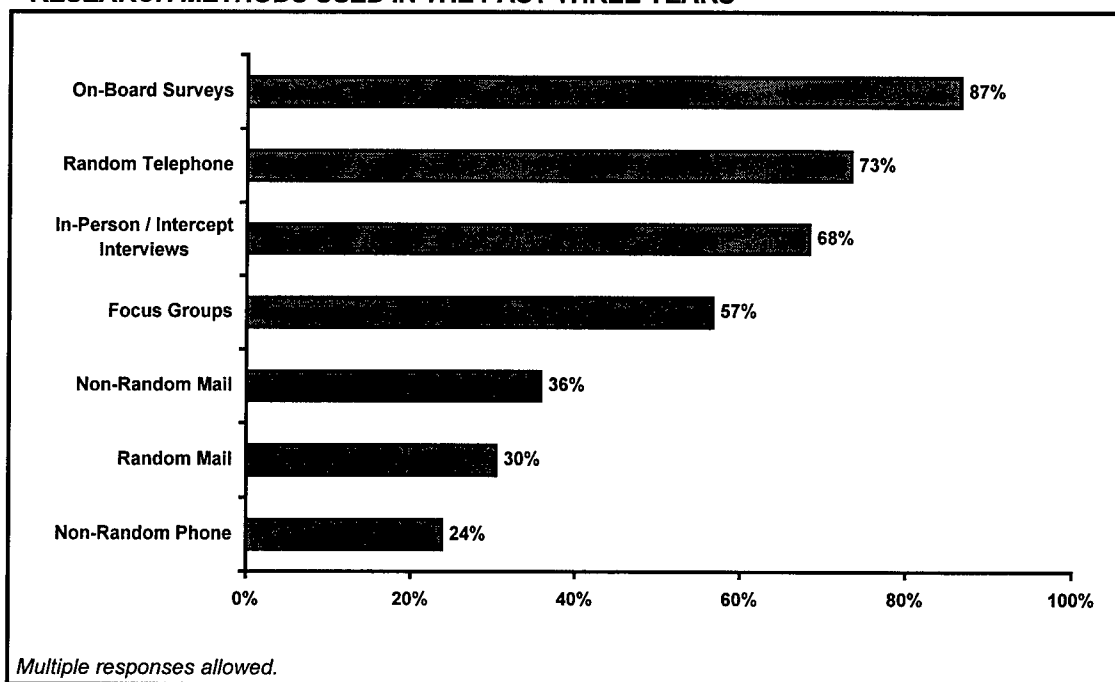


FIGURE 4
RESEARCH METHODS USED IN THE PAST THREE YEARS

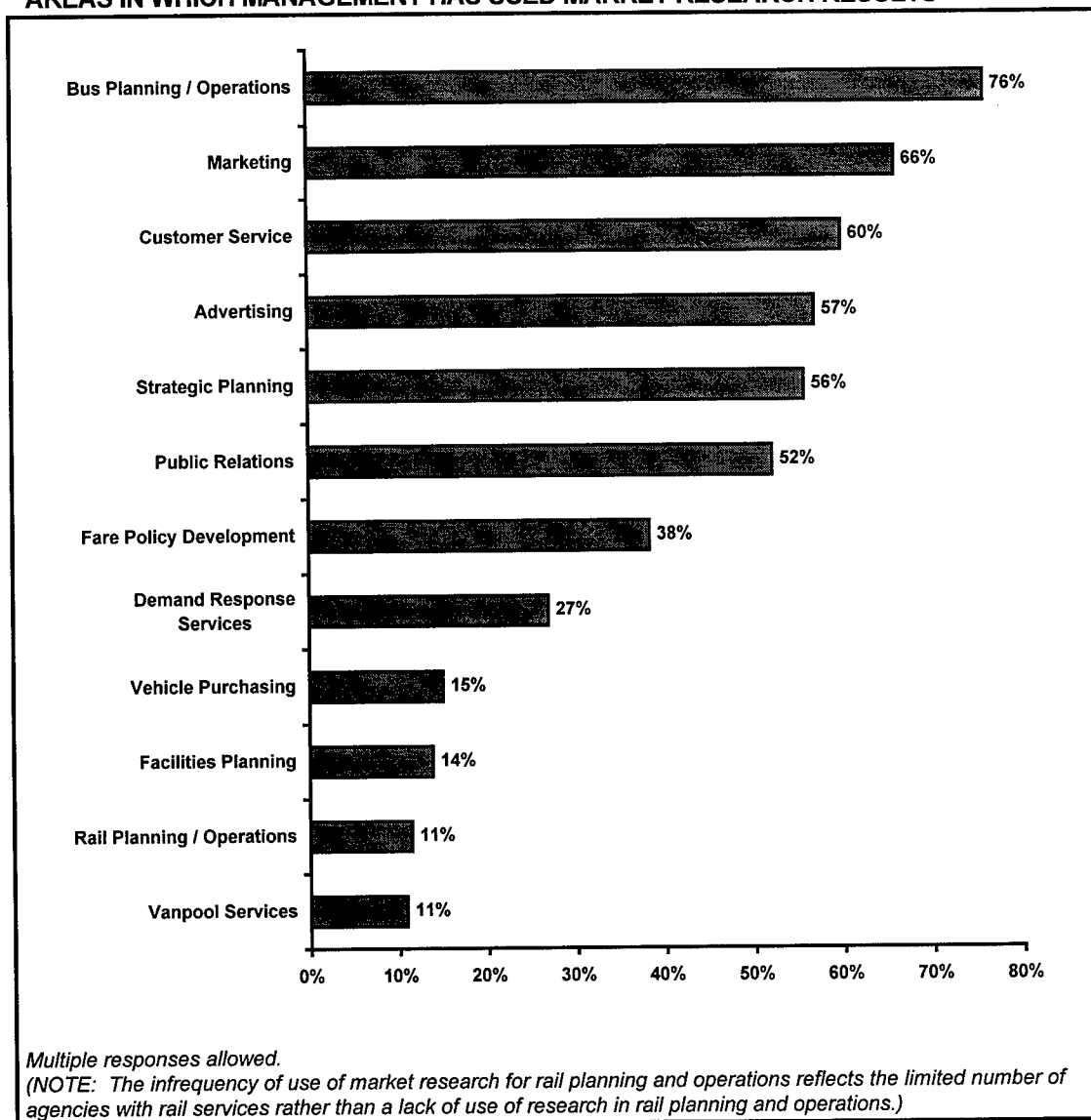


Despite this somewhat limited use of market and customer research, nearly all responding agencies said their management or other policy makers used market or customer research study results in making agency decisions. One out of three respondent agencies used market research to a large extent; over half (57 percent) used it to some extent. Only one out of ten agencies suggested that management or other policy makers at the agency did not use market or customer research in making agency decisions.

Market research is used most often by those involved in decisions regarding bus planning and operations. Research is also used frequently by those in marketing, customer service, advertising, strategic planning, and public relations. Those involved in decisions about demand response services, vehicle purchasing, facilities planning, rail planning and operations, and vanpool services use research infrequently (Figure 5).



FIGURE 5
AREAS IN WHICH MANAGEMENT HAS USED MARKET RESEARCH RESULTS



Barriers to the Increased Use of Research in Transit

What factors potentially explain this somewhat limited use of market and customer research for transit agency decision-making? Many working in public transportation are acutely aware that they should be making more frequent and much better use of market and customer research, but, in fact are often doing the complete opposite. Negative experiences in using market information or unfamiliarity with methods and uses of different types of information inhibit the willingness to acquire information and use it effectively in many transit agencies.

Two areas were explored to determine the extent to which they represent barriers to the increased use of market and customer research in transit: attitudes toward market and customer research in general and impressions of the success of past research efforts.

Attitudes toward Market and Customer Research

Respondents were asked the extent to which they agreed or disagreed with a series of general statements regarding market and customer research. For example,

Planners should be left to do their jobs without worrying about what market research says.

Market research is better suited to consumer products than to public transportation.

It would be worthwhile for my agency to know more about market research techniques.

Transit managers would make better decisions if we had more market research as a guide.

Market research is generally worth the cost.

Past experience is a better guide to decision-making than market or customer research.

It takes so long to get market research results that relevant decisions have already been made.

Respondents indicated their agreement or disagreement with these statements on a five-point scale where "1" represented "strongly disagree" and "5" represented "strongly agree."

Factor analysis was used to identify underlying attitudinal dimensions among the individual statements that might indicate the way agencies thought about market and customer research. Four dimensions were identified and given titles to reflect the variables that loaded into each factor.*

- **Suitability of Market Research:** The first factor had to do with the appropriate focus of transit decision-making, whether market research is needed for or appropriate to transportation planning, whether transit agencies know what customers need without market research, and whether customers know enough to provide useful market research to planners.
- **Usefulness of Market Research:** The second factor had to do with the overall usefulness of market research and whether or not it is worthwhile, worth the cost, and leads to better decision-making.

* For a detailed description of the methodology used and results of the factor analysis, see [Integrating Market and Customer Research Into Transit Management: Final Research Report](#).

- **Usability of Market Research Results:** This factor deals primarily with the usability of market research results based on market researchers' understanding of transit, the clarity of their results, and the time it takes to get answers to market research questions.
- **Value of Market Research:** This final factor has to do with trust, that is whether agencies place trust in past experience and "gut feelings" as opposed to market research. Also correlated with this factor are concerns about the availability of money to spend on market research.

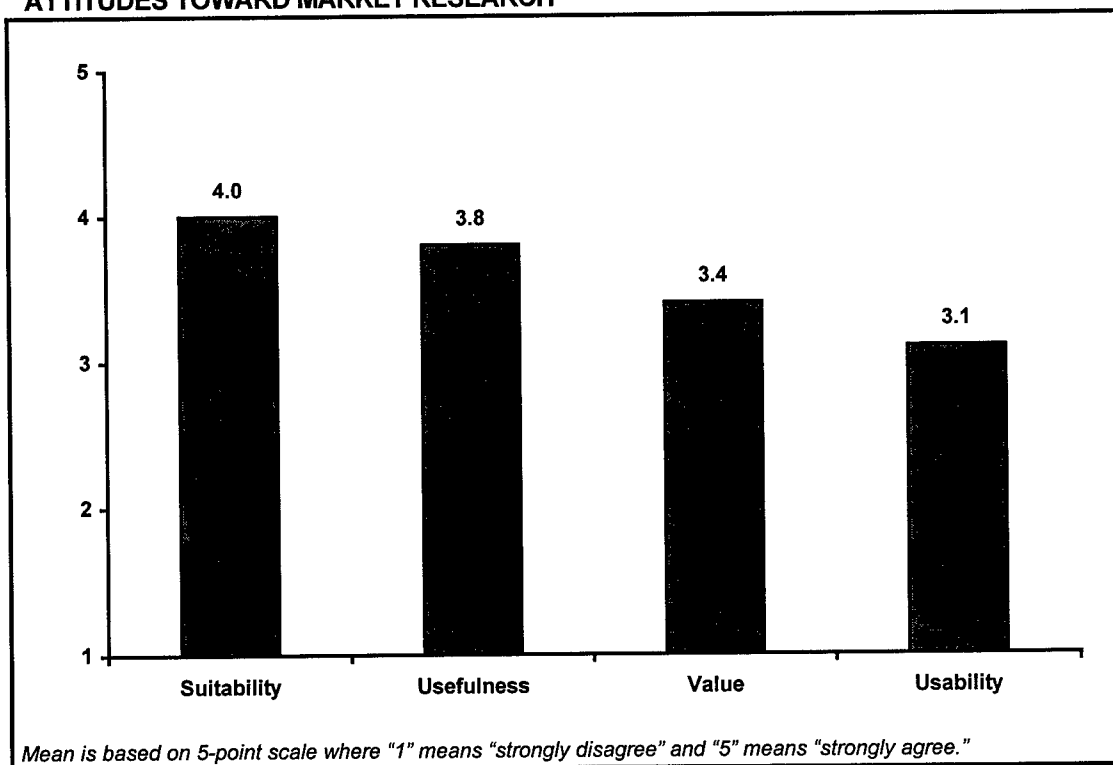
Next, an overall score was computed for each factor by averaging respondents' attitudes across the major variables contained in each factor. While factor analysis loads every variable to some extent to create each factor, this method creates variables that directly reflect the responses to the key questions represented by that factor.

Transit agencies agree that market research is suitable for transportation planning and market efforts – that is, market research is necessary for transportation planning and transit agencies do not know what customers want without market research. They also agree that market research is useful – that is, market research is worthwhile, worth the cost, and leads to better decision-making.

On the other hand, transit agencies are less likely to agree that market research is usable, based on market researchers' understanding of transit, the clarity of their results, and the time it takes to get answers to market research questions. Concerns were also expressed regarding the value of market research based on the trustworthiness of market research and the availability of money to spend on market research efforts. These factors, therefore, represent potential barriers to the increased use of market and customer research in public transportation.



FIGURE 6
ATTITUDES TOWARD MARKET RESEARCH



Success of Past Research Efforts

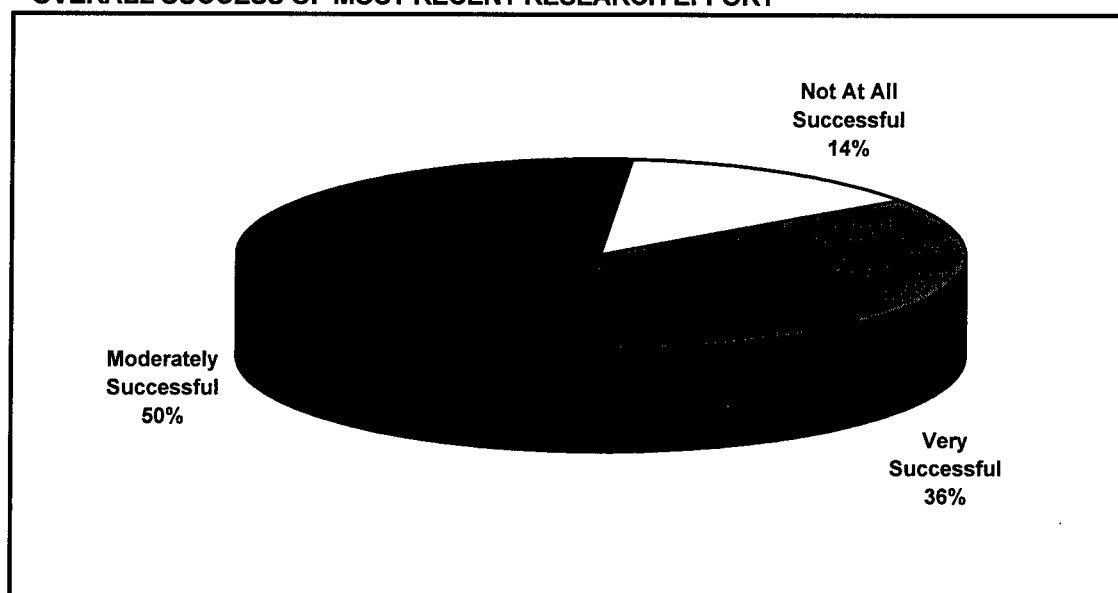
The success of past research also represents a potential barrier to the increased use of market and customer research. As the old adage goes . . .

Once burned. Twice cautious.

Transit agencies give mixed reviews for the success of their most recent research effort in resolving the key issues for which they designed it. More felt the effort was “moderately successful” than “very successful.” More than one in ten felt their most recent research effort was not at all successful.



FIGURE 7
OVERALL SUCCESS OF MOST RECENT RESEARCH EFFORT



Responding agencies indicated the extent to which they agreed or disagreed with fourteen statements reflecting different aspects of the results of their most recent market research project and the final report. For example,

The conclusions contained in the report clearly followed from the data.

The overall quality of the report content was high.

The language of the report was clear.

The research provided explicit recommendations for action.

The results of the research contained some real surprises.

Without this research information, the agency would have taken very different actions.

The results from this research supported decisions already made.

The implications of the findings were politically acceptable to the organization.

Factor analysis was used to understand the underlying dimensions along which managers might evaluate their past research efforts. Transit agency managers evaluated their previous research efforts along four dimensions. These dimensions were given names based on the statements that loaded into (were correlated with) each dimension.*

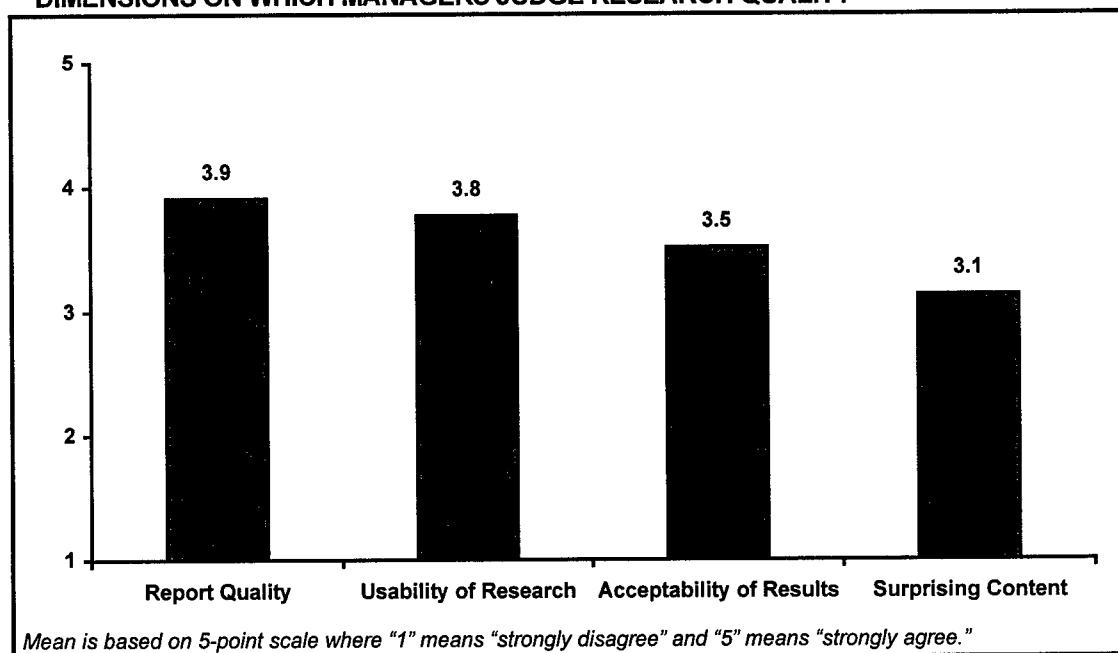
- **Quality of the Report:** This dimension pertains to transit agency managers' perceptions that the conclusions of the report related to the data, the quality and clarity of the report content, the complexity of data analysis, and the timeliness of the information.
- **Usability of the Research:** The second dimension has to do with the practicality of recommendations, whether recommendations were explicit enough, and whether they were used in policy decisions.
- **Surprising Content:** The third factor reflects responses regarding whether the results contained real surprises, whether the results were what was anticipated, and whether the agency would have taken a different action with the research results.
- **Acceptability of Results:** This final factor has to do with respondents' impressions that research results supported decisions already made or politically acceptable to the agency.

Next, an overall score was computed for each of the four factors to reflect respondents' agreement or disagreement with the factor. This part of the analysis shows transit agencies believe that the quality of the reports they receive is generally high. To a lesser extent, they believe that the research was usable.

Potential barriers to the increased use of market and customer research in transit management are concerns regarding the acceptability of the results of the research to the organization and the degree of surprising content in the research results.



FIGURE 8
DIMENSIONS ON WHICH MANAGERS JUDGE RESEARCH QUALITY



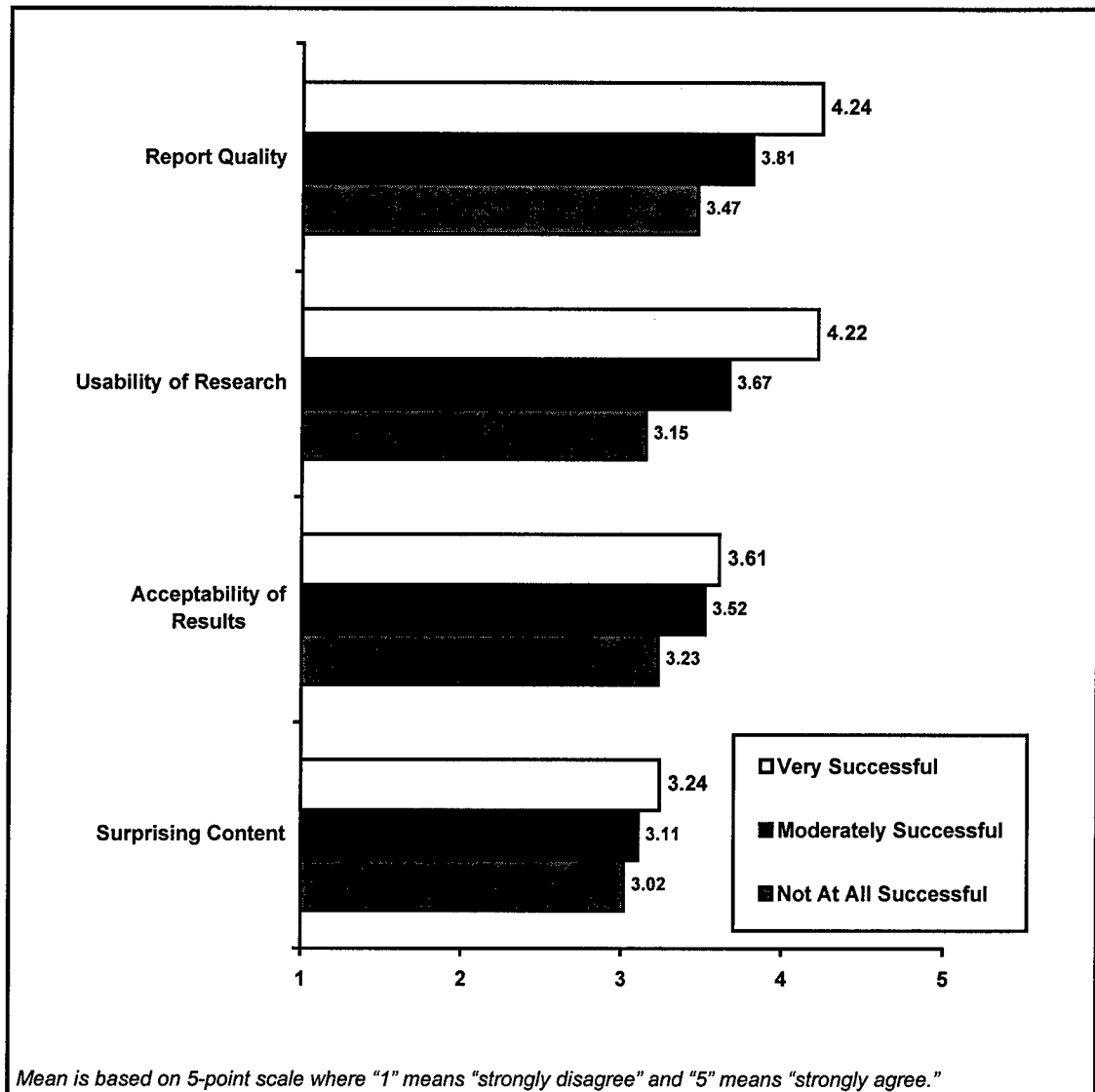
* For a detailed description of the methodology used and results of the factor analysis, see [Integrating Market and Customer Research Into Transit Management: Final Research Report](#).

Perceptions of the overall success of the research effort were related to respondents' perceptions of the quality of the report, usability of the research, and to a lesser extent the acceptability of the research. Agencies that had very successful research efforts gave high evaluations to both the report quality and usability of the research. Agencies that were only moderately successful gave higher evaluations to report quality than to the usability of the research, suggesting that usability of research and the agency's ability to integrate the research into their decision-making represents a major barrier to the use of market and customer research.

There was no relation between agencies' perceptions of the success of the project and the extent to which the results of the research contained surprises.



FIGURE 9
RELATIONSHIP BETWEEN QUALITY AND USABILITY OF RESEARCH AND
PERCEIVED SUCCESS OF RESEARCH EFFORT



The Road Ahead: The Importance of Market and Customer Research in Transit

Despite these barriers, the importance of market and customer research in public transportation cannot be underestimated. Yet this research suggests that much opportunity remains for the use of market and customer research in public transportation. Moreover, as the environment in which transit operates becomes increasingly complex and competitive, agencies have a growing need to be more sensitive to the voice of the market.

The Functional Roles of Research in Decision-Making

Market and customer research can serve three important functional roles – descriptive, diagnostic, and predictive – for decision-making in the public transportation:

- Its **descriptive** function includes gathering and presenting statements of fact. For example, what percent of the population has ridden the bus in the past thirty days? What are riders' attitudes toward the quality of service? Much of the research conducted by transit agencies serves primarily a descriptive function.
- The second role of research is the **diagnostic** function. Here, data and/or actions are explained. For example, what is the impact on ridership with the introduction of a new service or change in fares? In the past few years, some transit agencies, notably larger agencies, have begun using the diagnostic function inherent in customer and market research.
- Finally, market and customer research can serve a **predictive** function. In this capacity, descriptive and diagnostic research is used to "predict" the results of a planned decision or policy change. At this time, little transit market research serves in this capacity. However, this represents an opportunity for actionable research addressing many unique policy decisions faced by transit organizations.

The Increasing Need for Information

Several factors stimulate the need for more frequent and more effective use of information:

- The marketplace is increasingly characterized by a growing number of types of stakeholders – more diverse customers – that are changing more frequently. This means that a broader array of information may have to be used and that standard means of interpreting information may no longer be adequate.
- The time available for making decisions is getting shorter as agencies are better able to bring new products and services to market sooner and to enter new markets more quickly than in the past.
- The half-life for information – the average time for which it is valid – is shrinking as changes in the marketplace occur more and more often. This means that what is true today is less and less likely to be true tomorrow. Transit managers not only need to examine market conditions more often, but also must be prepared to translate data into action much more frequently.
- Agencies have many attractive options to pursue with increasingly scarce resources. More careful use of market research is necessary to decide the right thing to do and how to do it

right. This means that agencies need more exploratory or developmental market research, even at the expense of the confirmatory research that now accounts for most of the research budget in all but a few agencies.

Market and Customer Research: An Invaluable Tool

Market and customer research is an invaluable tool to managers in many functions. Organizations that have recognized the importance of market and customer research have identified many benefits to integrating a research function into their organizational decision-making.

Improving the Quality of Decision-Making

Most important, market and customer research improves the quality of decision-making by shedding light on the desirability of various alternatives. While market and customer research cannot guarantee the ultimate success of any single decision, reliable and valid research data can eliminate bad alternatives and provide input into the strengths and weaknesses of other potential alternatives. This significantly reduces the risk and uncertainty inherent in any decision.

Consider the following example where research clearly identified strategies that were unlikely to succeed, yet the results were not used when making the final decision.

A large suburban agency had a widely diversified ridership ranging from very upscale to very low income level demographics. The system had a monthly pass but found that those in the lower economic strata could not afford the up front costs of the pass, therefore missing a discount opportunity.

Through survey research, the agency found that the best way to give this group discounts was to offer discounted ticket books. The agency then conducted focus groups to learn the best way to offer tickets. The research results suggested that tickets would have to be readily available at multiple outlets in targeted neighborhoods. Moreover, cash was the preferred method of payment, since many low income people do not have credit cards or checking accounts.

Because of other pressures, the agency introduced the ticket program on a direct mail basis only. The result, according to the general manager, "Ticket sales were dismal. We're going to go back and use the research recommendations."

Several months later, the agency introduced ticket books at six outlets and supported the distribution by advertising. The ticket books sold out the first day they were introduced at the outlets.

On the other hand, consider this example of a small transit agency – Whatcom Transportation Authority (WTA) in Bellingham, Washington. After conducting its first major market research effort, it launched a successful new service, resulting in a significant ridership increase. Passenger Transport noted that WTA experienced the second largest percentage increase in ridership among reporting agencies – 47 percent – during the third quarter of 1994.

At the time of the survey, the Whatcom Transportation Authority (WTA) operated Monday through Friday between 6:30 a.m. and 6:30 p.m. and on Saturdays between approximately 9:40 a.m. and 5:40 p.m. A community survey of riders and nonriders suggested a strong interest in WTA extending its service hours.

WTA established the "Nightline" in 1993, extending its evening service to 11:20 p.m. The implementation of the new service helped WTA achieve increases in overall system ridership in 1994 – the first full year of Nightline service – as compared with 1993 levels.

Understanding the Marketplace

The second basic benefit of market and customer research is a better understanding of the external environment in which a system is operating. This has long been the primary use of market and customer research. However, with the escalating rate of change and the increased focus on the customer and customer service, organizations are recognizing that a research function that continually surveys the marketplace allows them to take a more proactive stance in the marketplace. That is, agencies introduce new products and services to take advantage of opportunities. They adjust existing products or customer service before flaws become major problems. It is the difference between viewing the turbulent environment in which many agencies operate as a "threat" – a reactive stance – or an "opportunity" – a proactive stance.

For example, one large regional transit agency knew little about the market it served. By that, it failed to recognize an opportunity for increased ridership.

A large regional transit agency provided service to a hub city, local service in a group of satellite cities, and regional service connecting the hub and local services. They based service decision primarily on results contained in a limited market research database, mostly as on-board survey results.

One satellite city was interested in attacking a severe traffic problem developing because of rapid growth in the area, spurred by a rapidly growing high-tech industry and the expansion of a major university. In spite of the resident and student population growth, ridership of the bus service provided by the regional agency had remained flat and, in some cases, declined.

The city approached the regional agency for research data to help explain the phenomena, but found the agency did not have data that they could apply to the local situation. The city developed its own research program that surveyed residents and students through a combination of on-board surveys, telephone surveys, and focus groups. Highlights of the findings included:

- More than 80 percent of the students on the 40,000-population campus did not know there was local or regional bus service available.
- Of those who were aware of the service, only 20 percent knew local service was available.
- While 75 percent of local residents were aware of some form of bus service, 90 percent could not say where the nearest bus stop was to their home.
- Students strongly preferred a prepaid pass associated with their student activity fee.

Armed with these results, the city in cooperation with the regional agency and the university launched a major public information and advertising program. In cooperation with the university, it also initiated a student activity fee prepaid pass program. The results – student ridership increased 300 percent in one year while resident ridership increased 25 percent. This was done without any major modifications to the regional agency's service or fares.

Had the regional agency had an adequate research base in the first place, they would have discovered this growth opportunity years before. Today, the agency has expanded its research function and has discovered several other opportunities.

Finding Out What Went Wrong

Under its diagnostic role, market and customer research is effective in identifying why something did not work out as planned. Instead of leaping to the conclusion that the decision itself was inherently flawed, research data can provide information as to whether some unforeseen change in the external environment caused the problem. Alternatively, it can identify what factor or factors in the implementation of the decision led to the problem. This information can then be used to avoid making a similar mistake in the future. For example:

The Washington Metropolitan Area Transit Authority (WMATA) has experienced a significant decline in ridership on the bus portion of the bus / rail system. Some reasons for the decline were apparent – a shift of employment from the Washington, D.C. core of the system to the suburbs of Maryland and Virginia, competition from newly formed suburban bus services, and a difficult economy. These factors, however, did not explain all the drop-off in ridership.

WMATA decided to begin a research process to identify and quantify other factors that may have contributed to ridership attrition and to develop strategies to reverse the process. The first step in the program was a combination of exploratory focus groups followed by a quantitative random telephone survey. Some findings of this first phase of the project included:

- The nature of the potential rider market had shifted to a relatively young but upscale group who had high expectations for service quality.
- There was very high awareness of WMATA services – nearly 90 percent knew where a nearby bus stop was – but little practical knowledge about what service was provided or how to get information.
- Familiarity and use of WMATA's Metrorail service did not necessarily translate into use of its Metrobus service.
- The agency's existing research database did not provide enough micro detail to allow it effectively to identify new suburban market opportunities or the precise reasons for ridership attrition on a particular service.

Based on the first phase study information, the agency is looking at expanding its basic transit information system and to conduct a complete review of its current bus service criteria. Moreover, WMATA will field a large-scale random telephone survey designed to identify reasons for attrition and possible opportunities for service areas and where possible by route.

In summary, in today's complex world it is no longer of value for a manager to seek only the "right" decision. Rather, the greatest value is in managing the decision-making process in a way that increases the chances of choosing the best decision among the available alternatives, and in having that decision effectively carried out. This type of decision-making process requires appropriate tools, expertise, and innovative momentum to achieve quality decisions.

Market and customer research is key to this process.



Getting Started

The Basics of Customer and Market Research

TOOLBOX

- Nuts & Bolts: A Definition of Market and Customer Research
- The Wheels, The Rim, The Hub, & The Spokes: The Nature of Market and Customer Research for Decision-Making
- Direction Signals: The Research Process
- The Wheels on the Bus Go Round & Round: All Aboard for Successful Planning
- Farebox: Cost, Value, and Resources
- Your Road Crew: Selecting the Consultant Team
- Full Speed Ahead: From Planning to Project Initiation

Market and Customer Research Defined

Many people have a mistaken perception about market and customer research. They believe it is simply asking customers what they think or feel about some product, ad, or issue. While market and customer research does make use of consumer surveys, it involves much more. On the other hand, they see it as marketing research – a subset of market research.

Market research is the process of listening to the voice of the market and conveying information about it to appropriate management. Consider the following definition:

Market and customer research is the function that links the consumer, customer, public, and stakeholders to the decision-maker through information – information used to identify and define opportunities and problems, generate, refine, and evaluate alternatives; monitor performance; and improve understanding of the competitive environment in which a business operates.

Market and customer research specifies the information required to address these issues; designs the method for collecting information; manages and implements the data collection process; analyzes the results; and communicates the findings and their implications.

Source: Adapted from definition prepared by the American Marketing Association (1988)

While possibly overlong, this definition has several noteworthy highlights.

First, it presents an expanded view of the research function, causing organizations to take an outward focus. It links the organization not only with its existing customers – in the case of public transportation this would be an agency's current riders – but also with potential customers – for public transportation anyone that travels locally. Moreover, it acknowledges other segments that are particularly important for public transportation. Market and customer research can also serve as a better link to the public – for example voters – and stakeholders – for example, local businesses, employers, government officials – who provide support for public transportation services.

Second, the definition is broad. Market and customer research deals with all phases of planning, developing, and marketing either goods or services. It involves the application of research techniques to the solution of business problems of any sort – planning, problem solving, or control issues. The fundamental requirement is that a decision is being made and there are questions surrounding that decision.

Third, the definition indicates that market and customer research is not simply collecting data specified by someone else. Rather, in addition to its role in the actual collection and analysis of data, market and customer research plays an important role in determining the information that is needed to address specific issues as well as the implications of what the collected information suggests. Hence, market and customer research is defined as an information input to decisions, not simply the evaluation of decisions that have been made. What is not clearly stated in definition is that market and customer research alone does not guarantee success. The intelligent use of market and customer research is the key to business achievement. A competitive edge is more the result of how information is used than of who does or does not have the information.

Finally, the definition specifies that market and customer research involves a process. Market research is the process of collecting accurate, timely, and relevant information. It is also the process by which managers and researchers interact in making good decisions. Each phase of the process is important. The process is in place to assist management in decision-making and is not a means or end in itself.

The Nature of Market and Customer Research for Decision-Making

As noted in the definition, market and customer research is the link – information – between the agency decision-makers – planners, marketers, general management, and the board – and the agency's customers, consumers, public, and stakeholders. Moreover, decisions are not limited to marketing decisions. Rather, market and customer research provides information for all types of decisions agencies make – marketing, service, and policy.

There are many different types of research that agencies can conduct, depending on the nature of the decision. These are illustrated in the following figure. It is drawn as a *wheel* where the different types of research are the *rim* of the wheel. The *hub* of the wheel is the decisions that are being made. The *spokes* of the wheel indicate the flow of the information between the researcher and the decision-maker.

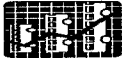
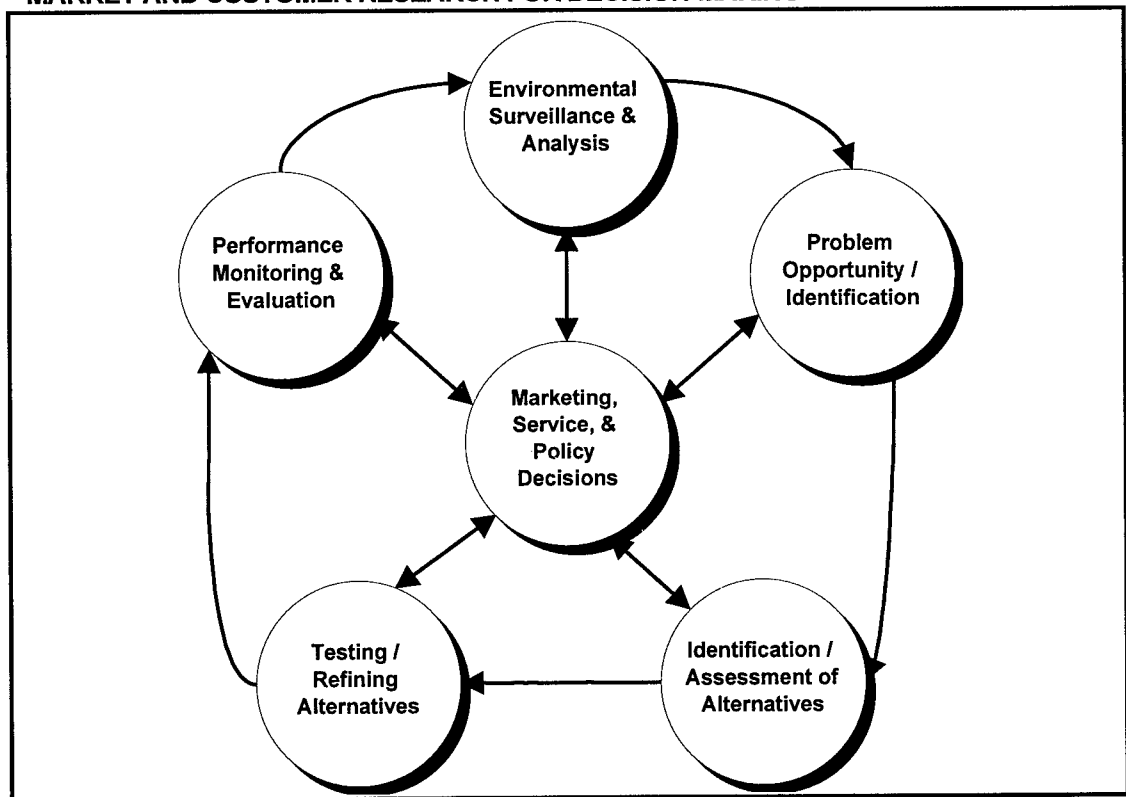


FIGURE 10
MARKET AND CUSTOMER RESEARCH FOR DECISION-MAKING



The wheel analogy serves several functions.

- First, it helps categorize decisions and the corresponding market and customer research activities.
- Second, it illustrates the central position of the decision-maker.
- Third, because of its circular design, the wheel illustrates the continuous and interrelated nature of the different phases of program development. Since the process of change is continuous, decisions and the related information needs recur, albeit with varying frequency, urgency, and predictability. To take the analogy one step further, there is also the suggestion that, as a wheel progresses so does data and information cumulate from one type of research to the next.

The main elements of our wheel are elaborated below.

Environmental Surveillance

- What are the characteristics of our market?
- What major trends influence these characteristics?
- How is our agency performing?

The decision process starts with environmental surveillance. This surveillance process includes: the *detection* of impending or emerging change, the *recognition* of its implications, *forecasting* the direction and timing of development, and *tracking* the continuous progress.^{xxxii}

All agencies need a current and thorough understanding of their environment. This understanding should be based on all aspects of the environment – economic, technological, social, political, and cultural – that will influence marketing, service, and policy decisions. There are, however, certain basic types of information relating to consumer behavior and market characteristics that are especially useful in signaling changes in the market and helping management respond to these changes.

The data collected for surveillance purposes can differ as to the level of detail they provide. Much of the data is secondary in nature – for example, census data – or is collected from other sources – for example, state DOTs or local MPOs. Internal data – for example, ridership figures – also are part of environmental surveillance. This data is both provocative and frustrating for the level of aggregation often obscures the true picture. To counter this problem, agencies may elect to gather primary data. Here, survey research is often used. In some cases, this is longitudinal in nature. Sample sizes often are large enough to provide reliable analysis among many key subgroups – for example, riders and nonriders or different areas of the region. Interviews are often conducted by telephone or in person and are structured in nature. Consider the following example:

For over fifteen years, Seattle Metro has conducted an annual telephone survey of riders and nonriders in the King County area. Over the years, the study has taken a variety of forms but serves the basic purpose of measuring riders' and nonriders' awareness of and attitudes toward Metro and its services. Further, Metro uses the study as a forum for probing public sentiment about highly critical issues such as personal safety and security. The annual survey provides an important source of data over time and is used to gauge ridership – reflecting the incidence of riders in the population as opposed to boardings. It also measures satisfaction with transit-related services among Metro transit users.

Problem and Opportunity Definition

- What is the nature of the problems or opportunities the agency is facing?
- How serious is the problem? How great the opportunity?
- What are the consequences of the problem or opportunity for our market position or ridership growth?

This type of research focuses directly on the problems and opportunities identified as agencies better know and understand the environment in which they are operating the characteristics of their market. For problems, the task is to understand their causes and to predict their consequences. For opportunities, there is a need to further explore their size and nature. Moreover, this type of research is useful to help management to be more responsive to public wishes and complaints.

For example,

BART conducted such a study and found that operations were considered unreliable. The agency changed its emphasis in operations from expanding service to improving existing service.

Denver RTD found a large majority of those living within three blocks of a transit line felt they could not use it. To further explore the problem, a follow-up study was conducted that showed that they did not know how to catch or ride a bus.

Like environmental surveillance, agencies can use secondary data, but often, as in the RTD example, a special project will be required. Much of the research conducted at this stage is exploratory in nature. Focus groups and/or in-depth personal interviews often are used. Interviews are unstructured with the goal to capture unseen or unknown ideas as well as to identify potential alternatives.

A problem that has become an increasing focus for many transit agencies is ridership retention. Houston METRO and WMATA have used focus groups and surveys to better understand why riders stop using public transportation. The research showed the extent of the problem – in the case of Houston METRO nearly one out of four riders had abandoned the system. Moreover, it clearly showed the reasons for the problem as well as some possible strategies to overcome these barriers.

Conversely, an opportunity that more transit agencies are addressing is ridership acquisition. Here, the objective is on identifying potential rider segments.

Tri-Met (Portland, Oregon) completed a market segmentation study in 1993 that sought to classify people based on their attitudes toward transportation, their travel motivations, and the benefits they expect from their travel modes. This research has been used to develop marketing programs to target both existing and potential riders.

MCTO (Minneapolis, MN) has conducted two studies with nonriders in an effort to better understand the size and characteristics of the potential rider market and how to better reach this market with services and marketing programs.

Identification and Assessment of Alternatives

- How should we respond to the problem?
- What is the range of alternative solutions?
- What opportunities exist for new services or products?
- Which opportunities should be pursued?

Here the emphasis changes from what is, to what can be done. Within this general class of research there are several different types, some focused on broadening the range of alternatives – alternative generation – others on narrowing the set of alternatives to a manageable number – alternative screening.

Research conducted in the earlier phases may be useful in answering these questions. Moreover, a variety of techniques is generally used to generate and/or screen alternatives. For example,

The Central Ohio Transit Authority (Columbus, OH) conducted focus groups to assess community members' attitudes toward aspects of COTA's long range plan with specific focus on attitudes toward a proposed light rail system. Subjects responded to a series of questions on the proposed plan and possible themes for selling the plan to the public using the Perception Analyzer system, a hand-held device with which participants individually respond to questions and/or the presentation. Written exercises and a guided discussion provided further insight into the different alternatives being considered.

Testing and Refining

- Which alternative strategies, products, or services should we introduce?
- Should any changes be made?
- What is the best marketing mix to employ?

At this phase, the alternative strategies, policies, products or services are few in number and may be operational. The research task is to test the alternatives in the most realistic possible fashion. For communications programs, there are a variety of pretesting methods that ask whether the advertising message, brochure copy, and so on can be understood, believed, and will positively influence attitudes.

The marketing department for the Los Angeles County, Metropolitan Transit Authority conducted three focus groups to provide insights regarding nineteen pictograms: specifically in terms of how well each one communicates its intended message. For each pictogram, participants answered four questions: (1) What does this pictogram mean? (2) How sure are you that this is what it means? (3) Is there anything else it could mean? and (4) Where would you expect to see this pictogram?.

Alternative pricing strategies or service packages can be treated as concepts to which potential riders respond with expressions of interest. Under some circumstances the price and service levels can actually be manipulated in the context of a quasi-experimental design or through some form of modeling.

For example,

Houston METRO conducted a survey among Texas Medical Center employees to test different product / service offerings. Conjoint analysis was used to identify those attributes of service that were most important and the levels of those attributes which created the greatest product utility. Attributes tested included: fare, trip time, frequency, and span of service. Product and service modifications were made based on this research that resulted in significant increases in ridership on this route. Customer satisfaction also is higher on this route – 73 percent completely satisfied – compared with other comparable routes – 27 percent completely satisfied.

Performance Monitoring and Evaluation

- Should the new program, strategy, product, policy, etc. be continued, discontinued, revised, or expanded?
- Did the new program, strategy, plan, policy, etc. achieve its objectives? If not, why not?
- What are the cumulative effects of the new program, strategy, plan, policy, etc. in terms of increased ridership, better customer relations, increased awareness, improved performance, etc.?

The evaluation phase ends the research cycle, and begins it anew. It is not sufficient at this phase to evaluate the effectiveness of a new program, strategy, product, or policy solely in terms of boardings, trip counts, farebox revenues, and so forth. While this information is important for assessing cost effectiveness of the program, it is not adequate for determining what modifications are needed. Nor, does it provide feedback that allows the agency to learn from the experience. To achieve these latter goals, it is necessary to know the effects from the customer's point of view. The results of evaluation research make important contributions to the environmental surveillance phase. Indeed, one of the major intelligence questions with a strong evaluative flavor is: "How is our organization performing?" Hence, the research "steering wheel" forms a closed circle.

At this stage, research is generally quantitative in nature. In some instances, it is ongoing – conducted monthly, quarterly, or annually. Sample sizes are large enough to provide reliable estimates of change. Analysis may include the development of indices or other standard performance measures. For example,

B.C. Transit conducts research quarterly to determine satisfaction with the level of service delivered by conducting an ongoing monitoring study amongst transit riders and to monitor rider response to B.C. Transit advertising and information programs.

Many agencies conduct customer satisfaction research. If done rigorously and using tested customer satisfaction measurement methodologies, this research serves as performance monitoring and evaluation research. For example,

Milwaukee County Transit System has undertaken an ambitious customer satisfaction research program consisting of telephone interviews conducted quarterly with a random sample of 200 riders.

Houston METRO uses a self-administered and telephone administered survey to measure customer satisfaction.

The Research Process

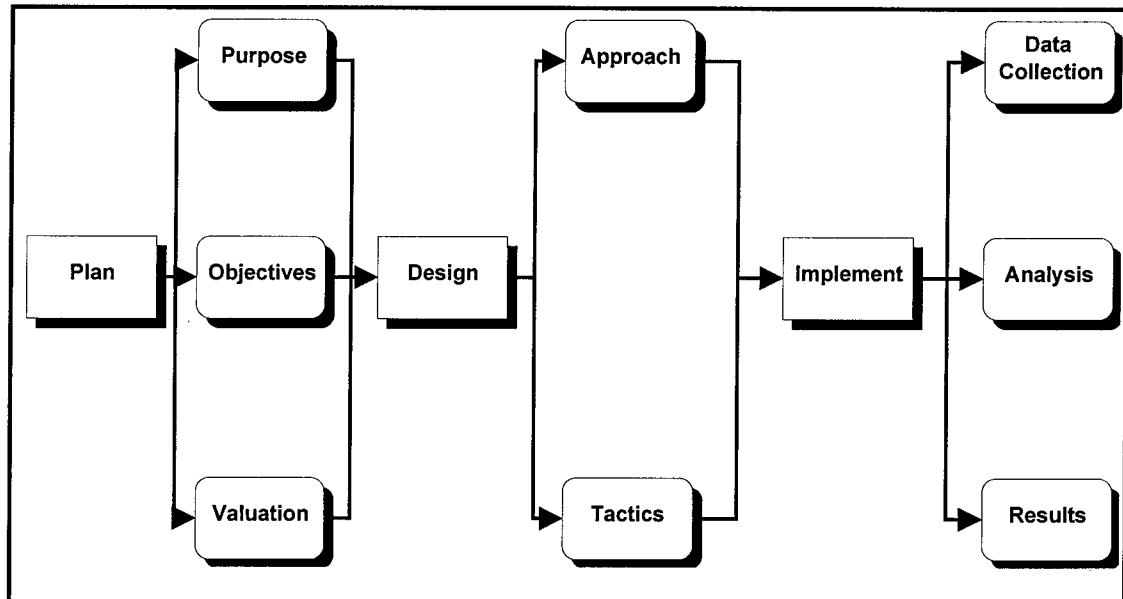
The market research function supports the agency's decision process by:

- Uncovering the need for evidence about the right problem,
- Collecting and evaluating the evidence,
- Presenting the evidence to the right people in the correct form and at the right time, and
- Providing additional support to the manager who must make effective decisions.

The many and varied steps of the market research process can be categorized into three distinct areas. Under each broad area are the distinct stages of the process that must be completed. This basic framework, while oriented toward formal market and customer research, is equally appropriate for other ways of learning about the market. Thus, the process as shown below is generic to all kinds of market inquiry processes.



FIGURE 11
DOING USEFUL RESEARCH – THE RESEARCH PROCESS



Planning for Research

Intelligent planning is an essential first step in developing an effective program of customer research. Effective planning will ensure both the technical and political success of the research effort. The research must be technically correct to avoid providing misleading or inaccurate information that can lead to poor decisions by management. However, simply providing technically sound research does not guarantee that the results will be used. An effective program of customer research must involve the entire organization. The credibility of the process must be established by involving key users of the research in the initial phases of development. Discussion should be encouraged. Objections and concerns should be listened to and addressed early in the planning process.

Planning for research requires a thorough understanding of how a market research project is conceived, designed, and executed. Customer research studies evolve through a series of steps, each representing the answer to a key question.

- **Why should we do this research?** Response to this question establishes the research purpose from the perspective of the management team that will be using the research. To answer this question one must understand the decisions that are to be made and/or the problems or opportunities to be studied.
- **What research should be done?** Here the management purpose of the research is translated into research objectives that tell researchers exactly what information is needed from the research study.
- **Is it worth doing the research?** Each research program should be evaluated as to whether the value of the information that is likely to be obtained from the effort is going to be greater than the cost of collecting it.
- **How should the research be designed to achieve the research objectives?** Design issues include the choice of the research approach – for example, qualitative or quantitative research – and the specifics of how to collect the data and what data to collect.
- **What will be done with the research?** Here, decisions need to be made as to how the data will be analyzed, interpreted, and used to make recommendations for action.

A customer research study is designed and implemented by following a process of sequential steps or stages that guide the project from its conception through the final analysis, recommendations, and ultimate action. The research process is a systematic, planned approach to ensure that all aspects of the research project are consistent with each other.

Using this process as a framework, a sample program and time line for a “typical” customer research program can be developed. Exhibit 7 illustrates a program / timeline for a “typical” quantitative research effort. For example, under a quantitative research effort that includes surveys, a time allowance of six months is common from initial planning to the development of recommendations resulting from the first wave of interviewing. Each stage of this process is very important and should not be rushed. A mistake at an early stage will result in a research program that does not achieve its basic goals and therefore is unlikely to be used.



EXHIBIT 7 **SAMPLE PROGRAM / TIMELINE FOR QUANTITATIVE RESEARCH PROGRAM**

| Task | Weeks From Start | | | | | | | | | | | | | | |
|--|------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Planning | | | | | | | | | | | | | | | |
| Agree On Research Purpose | | | | | | | | | | | | | | | |
| Define the Research Problem | | | | | | | | | | | | | | | |
| Estimate Cost of Conducting the Research | | | | | | | | | | | | | | | |
| Estimate Value of Information | | | | | | | | | | | | | | | |
| Determine Resource Requirements | | | | | | | | | | | | | | | |
| Draft Research Request | | | | | | | | | | | | | | | |
| Send Out Research Requests | | | | | | | | | | | | | | | |
| Select Consultant Team and Negotiate Contract | | | | | | | | | | | | | | | |
| Planning Meeting With Consultant Team | | | | | | | | | | | | | | | |
| Revise Work Plan As Needed | | | | | | | | | | | | | | | |
| Design the Research | | | | | | | | | | | | | | | |
| Design Sampling Procedure | | | | | | | | | | | | | | | |
| Determine Respondent Selection Instructions | | | | | | | | | | | | | | | |
| Develop Questionnaire | | | | | | | | | | | | | | | |
| Pretest and Revise Questionnaire | | | | | | | | | | | | | | | |
| Develop Analysis Plan | | | | | | | | | | | | | | | |
| Compare Cost and Timing Estimates with Anticipated Value and Current Work Plan | | | | | | | | | | | | | | | |
| Conduct the Research | | | | | | | | | | | | | | | |
| Train Field Supervisors and Interviewers | | | | | | | | | | | | | | | |
| Collect Data | | | | | | | | | | | | | | | |
| Coding and Data Entry | | | | | | | | | | | | | | | |
| Quality Review | | | | | | | | | | | | | | | |
| Analyze Data and Report Results | | | | | | | | | | | | | | | |
| Write Analysis Programs and Instructions | | | | | | | | | | | | | | | |
| Run Statistical Analysis Routines | | | | | | | | | | | | | | | |
| Inspect and Analyze Computer Output | | | | | | | | | | | | | | | |
| Compose Report Tables and Graphs | | | | | | | | | | | | | | | |
| Write Narrative Text of Report | | | | | | | | | | | | | | | |
| Interpret Data and Develop Recommendations | | | | | | | | | | | | | | | |
| Edit Report | | | | | | | | | | | | | | | |
| Assemble and Duplicate Report | | | | | | | | | | | | | | | |
| Deliver Final Report to Sponsor | | | | | | | | | | | | | | | |
| Present Results | | | | | | | | | | | | | | | |
| Follow-Up | | | | | | | | | | | | | | | |

The remainder of this chapter focuses on certain essential elements of the planning process for conducting customer research. Other chapters in the handbook provide detail on those aspects of the research process that apply specifically to customer retention research.

Agreeing On the Research Purpose

While each step in a marketing research project is important, identifying the research **purpose** is the most important. Launching a research study without a clear definition of the research purpose is a recipe for unusable findings and unhappy users. In fact, a survey of nearly 200 companies revealed that inadequate problem definition is a leading cause of failure of marketing research projects. Better communication and more involvement during this phase of the research process is the most frequently mentioned way to improve the usefulness of research.^{xxxiii}

The general purpose of customer research among current transit riders is clear – to obtain a valid and reliable assessment of an agency's performance from the customer's point of view. In short, the goal is to know what customers think about the transit agency and why. This information then provides a target for the strategic alignment of organizational resources to deliver what is most important to customers.

The research purpose comprises a shared understanding between the users of the research and the internal or external persons who are conducting research for three major issues as contained in Roadmap 1. Given the strategic nature of any quality improvement process, key sections of an agency must be involved in defining the research purpose. This helps clarify the needs of various information users, creates a sense of ownership of the process, and identifies how various levels of an agency may have to cooperate to plan action strategies to carry out the research. Equally important is determining how the information will be used once it is developed. Careful analysis of strategic and tactical organizational applications will ensure that issues of design, sample, analysis, reporting, and deployment are structured to provide customer-focused information that can be acted on most effectively.



ROADMAP 1

AGREEING ON THE RESEARCH PURPOSE – ISSUES TO RESOLVE

| Issues | Nature of the Issues |
|---|---|
| ✓ Problems / Opportunities To Be Studied | Which problems or opportunities are anticipated? What is the scope of the problems or opportunities and the possible reasons? |
| ✓ Decision Alternatives To Be Evaluated | What are the alternatives being studied? What are the criteria for choosing among the alternatives? What is the timing or importance of the decision? |
| ✓ Users Of the Research | Who are the decision-makers? Are there any covert purposes? |

Also central to the process of agreeing on the research purpose is identifying what kind of research is most appropriate for the decision at hand. This does not entail deciding what method of data collection to use or what questions to ask. Rather, the focus is on identifying the kind of marketing or customer research appropriate for a particular situation. A useful guide has been developed that provides a specific and generally dynamic tool to assist in this process.^{xxxiv}

This guide borrows from the classification of marketing strategies developed by Igor Ansoff.^{xxxv} Ansoff states that growth can be achieved through the implementation of product / service strategies within a traditional framework of alternative growth opportunities. These growth opportunities are based on a classification of **products** – present or new – and **markets** – present and new. The guide illustrated

here is similarly substituting only the words “present” with “known” and “new” with “unknown.” Then, instead of identifying the appropriate business strategy given the decision facing an organization, appropriate customer or market research strategies are identified. The resulting framework presents four research needs quadrants that illustrate the four most common situations or business scenarios for which a company would need marketing research.



EXHIBIT 8 A DECISION-BASED FRAMEWORK TO RESEARCH

| | Known Products / Services | Unknown Products / Services |
|--------------------|---------------------------------------|--------------------------------|
| Known Markets | 1. Monitor Progress / Track Trends | 3. Prescriptive Solutions |
| Unknown Markets | 2. Descriptive Definition | 4. Exploratory Exposure |

To apply this framework to a specific decision problem, a manager needs to ask two questions.

- 1) In terms of this decision, how well do I know my customers and my competitors? Do I have (a) many questions and few answers (unknown markets) or (b) few questions and many answers (known markets)?
- 2) In terms of this decision, how well do my customers know my products or services? Do they have (a) many questions and few answers (unknown products / services) or (b) few questions and many answers (known products / services)?

Armed with the answers to these questions, researchers and managers now have a tangible starting point for discussing the purpose of the research, identifying objectives, and specifying the type of research that is needed. The following examples illustrate the application of this framework to some typical decision problems faced by transit agencies.

Unknown Markets and Unknown Products / Services

Agency A's traditional service focus is on fixed routes operating in an urban environment. This agency has developed a new ridesharing program targeted specifically at large employers located in suburban locations. The agency is entering an **unknown market** with an **unknown or unproved product** in terms of an application within its service area. Agency A has many unanswered questions regarding potential customers – users and employers – and just as many questions about both the attractive and potentially bothersome aspects of the proposed service. There is a need for further **exploration** to understand the decision problem. The purpose of the research would be to gain an understanding of this new market in terms of how it may respond to a new product. The following questions might be included. Who are the potential customers? When and where are decisions to use this service made? What aspects of the service represent a “hot” button? How will the new service perform?

Unknown Markets and Known Products / Services

Agency B is considering expanding an established and successful service – retail sales outlets for passes and other fare media – into a new market – suburban malls. This places Agency B into the **unknown markets** but **known products / services** quadrant. Agency B needs **descriptive** definitions of customers, competitors, and market potential for this service in this new market. The purpose of the research is to gain an understanding of the marketplace, the customer, and the competition. The research also will be used to serve as a benchmark from which to track the success of introducing the service.

Unknown Products / Services and Known Markets

Like many agencies today, Agency C's performance ratings for safety and security have been steadily declining. Consideration is being given to strategies to increase perceptions of safety – an **unknown product / service** – among current riders – **known markets**. What is needed is research that provides **prescriptive** solutions about the poor performance of one aspect of existing service. Questions that might be explored in the research might include “in what ways can or should safety and security measures be improved?” or “what would happen to riders' feelings of personal safety and security if a particular strategy is tried?”

Known Products / Services and Known Markets

Agency D has introduced a customer service initiative that requires a focus on delivering excellent service – **known products / services** – to its current riders – **known markets**. The purpose of the proposed research is to **monitor performance and track trends**, and, by doing so, alert management to impending changes in the market environment. It is believed that this research will serve as a proactive base on which to identify problems and opportunities as they arise.

Defining the Research Problem

“A problem well-defined is a problem half-solved.”

The research problem is a statement, in as precise terminology as possible, of the purpose of the market research effort and the information that is needed to achieve the research objective. While this sounds like a simple process, it frequently is the most difficult – and potentially the most important – task a researcher can undertake. Poor problem definition can result in a host of undesirable consequences, including incorrect research designs, inappropriate or needlessly expensive data collection, assembly of incorrect or irrelevant data, and choice of the wrong population to sample.

What often makes the problem definition process so difficult is the communication between the end user of the research – the decision-maker – and the researcher or market research analyst. It is the general presumption in the process that the path to a clearly defined research problem is clear. That is, the decision-maker knows a problem exists, has clearly defined the problem, and the problem is clear to all concerned. Armed with this information, the decision-maker approaches the researcher who immediately produces a research design that clearly provides the information the decision-maker needs

to address this problem. This presumption is rarely the case. It is unfortunate, but true, that most end users of research do not explicitly state their research objectives.

Despite a popular misconception to the contrary, objectives are seldom given to the researcher. The decision-maker seldom formulates his objectives accurately. He / she is likely to state his objectives in the form of platitudes that have no operational significance. Consequently, objectives usually have to be extracted by the researchers. In so doing, the researcher may well be performing his / her most useful service to the decision-maker.^{xxxvi}

What is more often the case is a general feeling that “something is wrong,” or a sense that some market or customer research “would be a good idea right now.” The problems are buried under a heap of symptoms – financial statements, ridership figures, other research studies, memos, opinions, etc. Decision-makers often come to the researcher with only a vague definition of the problem and may rely heavily on the researcher to help work out a problem’s full scope. While there is no single, all-purpose method for defining the research problem, Randall Chapman has developed a simple approach that offers a specific tactic to begin the dialog between the decision-maker and the researcher.^{xxxvii}

This approach has two components.

- The first phase involves formulating an explicit “**research objective**” to guide the research effort. The “*research objective*” is a single-sentence description of the purpose of the market or customer research effort.
- Next, the decision-maker and researcher formulate a series of “**research questions**” that, individually and in total, result in achieving the “research objective.” Relevant forms of research questions include, “who?” “what?,” “why?,” “when?,” “where?,” and “how?”. Some research questions may be cast in terms of hypotheses – “improved headways are more likely to retain current riders than improved access to service.”

An iterative process is required to define the research objective and research questions. This process consists of the following steps:

- The decision-maker and the researcher jointly formulate a tentative research objective statement.
- The researcher conducts some exploratory research – literature review, stakeholder interviews, focus groups, etc. – to test the appropriateness of the tentative research objective statement and to develop possible research questions.
- The decision-maker and the researcher jointly revise the research objective statement and formalize the research questions in light of the exploratory research.

A particular problem in the design of transit research projects arises from the necessary procedures inherent in the “request for proposal” process. Here, researchers are frequently presented with a tentative problem definition statement that often takes a research design as the starting point – “I want to do a survey of . . .” or “I want to conduct focus groups with . . .” Even within the context of responding to a request for proposal, a good researcher can develop a clearer research objective. During this period, transit agencies should encourage an open dialog between those responding to an RFP and the potential end users of the research. Once the contract is awarded, this open dialog must continue. During this process, the researcher is likely to ask questions such as:

- What decisions will be made based on this research?
- How will market or customer research influence these decisions?
- What would be the most and least desirable outcome of the market research? Why?
- What information do you already have / What do you already know that is relevant to this decision?
- What information will make a difference in the decisions to be made?
- Why do you need to know this?
- What else do you need to know to make an informed decision?

Answers to these questions should lead to a problem definition statement and a listing of the research questions. It may require more than one pass through the three-step process defined above. As time and resources permit, the researcher and decision-maker should review secondary data, trade industry sources, publications, research studies conducted by other agencies, and the like, to learn more about the dimensions and context of the research problem. Exploratory research in the form of focus groups or in-depth interviews may be required. At the end of the process, however, a clearly written statement of the research objective and research questions should result. Exhibit 9 illustrates some research objectives and corresponding research questions.



EXHIBIT 9
DEFINING THE RESEARCH PROBLEM

| SITUATION | RESEARCH OBJECTIVE | RESEARCH QUESTIONS |
|--|--|---|
| After some exploratory research, [agency] wanted to gain a better understanding of the causes for declining ridership. | To determine the factors that account for [agency's] decline in ridership among those using public transportation for nonwork travel during the first quarter of the year when there was no corresponding decline in ridership among other key segments. | <ol style="list-style-type: none"> 1. What tangible attributes of the service are most desired? 2. Have those riders who used public transportation for nonwork travel switched to another mode or do they no longer travel for nonwork purposes? If they have switched, why? 3. Has there been a change in nonwork travel patterns making the use of public transportation no longer a viable opportunity? 4. How do these riders perceive the [agency's] delivery of those aspects of service that are most desired (see question #1)? 5. Have these riders perceived any change in the agency over the last year? 6. Has there been a change in the perceived value of service among this market in the past year? |



EXHIBIT 9 DEFINING THE RESEARCH PROBLEM

| SITUATION | RESEARCH OBJECTIVE | RESEARCH QUESTIONS |
|---|---|---|
| [Agency] operates a regularly scheduled shuttle service along a major corridor of business parks. The current service starts at a nearby train station. [Agency] is interested in assessing demand for a similar service serving the same corridor but originating at a park-and-ride lot in an area where there is no existing rail service. | To determine the market potential for [agency's] shuttle service between [park-and-ride lot location] and [corridor]. | <ol style="list-style-type: none">1. How often do persons working in this corridor travel between lot and corridor, when do they usually travel, and what mode of transportation do they presently use?2. What factors do travelers take into account when choosing a travel mode? What are the relative importances of these factors?3. What environmental trends may impact demand for transportation services in this corridor?4. Under what circumstances would travelers find the proposed service to be of interest?5. Assuming the introduction of the proposed service, what kind of service design – headways, access, etc. – and marketing programs would be appropriate? |

To summarize, early conceptualization at the problem definition stage is crucial to conducting effective and efficient market and customer research. In addition to encouraging early thinking in the research process, the problem definition phase using this approach encourages an early dialog between the decision-maker and the researcher, thereby ensuring that the study is oriented toward a relevant managerial problem. This dialog also increases the chance that the study will have the maximum impact on managerial decision-making associated with the problem. Finally, it serves as a useful communications device to relevant "others" who, while not directly involved in the research effort, are stakeholders to whom the research effort may be of more than passing interest.

Estimating The Cost Of Conducting Customer Research

Many factors affect the cost of customer research. For example, in a random household telephone survey costs are influenced primarily by:

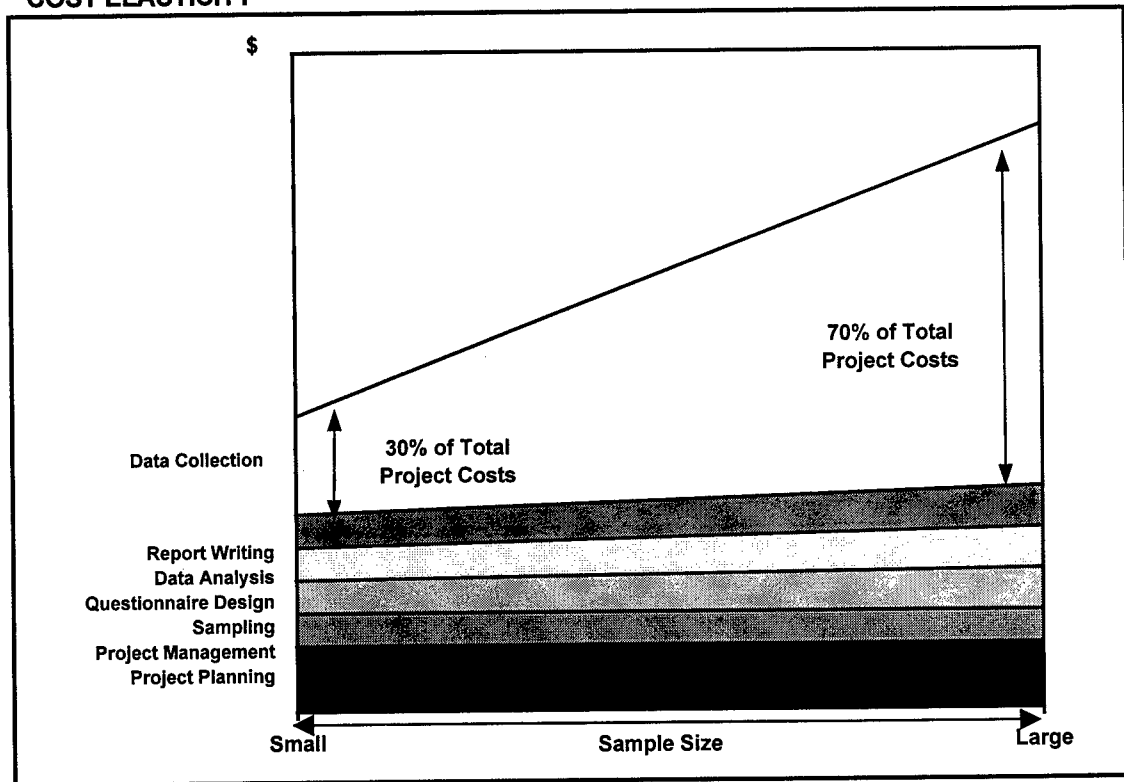
- 1) Sample size,
- 2) The "incidence" of qualified respondents in the population, and
- 3) The length of the survey.

A "typical" quantitative research effort can cost as little as \$5,000 or as much as \$250,000 or more. It would be misleading, therefore, to present in this handbook examples of budgets for a "typical" customer research program targeted at existing transit riders. Instead, an overview of major elements affecting the cost of customer research is presented.

Included in the cost of any research study are labor costs and direct costs for materials and supplies. Moreover, the cost of conducting research also consists of fixed costs – that is, costs that are independent of variable costs affected by sample size and survey length. Figure 12 illustrates the relationship or “elasticity” between fixed and variable costs as sample size increases.



**FIGURE 12
COST ELASTICITY**



In addition to sample size, two other factors typically drive the cost of data collection – survey length and the “effective study incidence” (E.S.I.). Obviously, as survey length increases, so do the costs of data collection. A decrease in the “effective study incidence” also will result in an increase in data collection costs.

The ESI is the proportion of qualified respondents in any given sample.^{xxxviii} For example, if a transit agency wants to conduct a random telephone survey of riders in their service area, the effective study incidence would represent an estimate of how many persons would need to be screened in order to find a rider. The basic formula for the calculation of the effective study incidence is:

$$\text{Effective Study Incidence (ESI)} = \frac{\text{Total Number Screened and Eligible}}{\text{Total Number Screened}}$$

The lower the ESI, the greater the costs of data collection. Exhibit 10 shows the relationship between the length of the survey, the effective study incidence, and the cost of data collection as measured by the number of interviews that can be completed in an hour. The actual cost of data collection can be estimated by multiplying the number of completed interviews or “completes” per hour times the labor rate charged for data collection – interviewing and supervision time.



EXHIBIT 10
EFFECTS OF SURVEY LENGTH AND EFFECTIVE STUDY INCIDENCE ON
DATA COLLECTION COSTS

| ESI | Survey Length (in minutes) | | | | | |
|------|----------------------------|-----|-----|-----|-----|-----|
| | 5 | 10 | 12 | 15 | 20 | 25 |
| 100% | 4.0 | 2.3 | 2.0 | 1.7 | 1.2 | 1.0 |
| 90% | 3.8 | 2.3 | 2.0 | 1.7 | 1.2 | 1.0 |
| 80% | 3.6 | 2.2 | 1.9 | 1.6 | 1.2 | 1.0 |
| 70% | 3.4 | 2.1 | 1.8 | 1.6 | 1.2 | 0.9 |
| 60% | 3.2 | 2.0 | 1.8 | 1.5 | 1.1 | 0.9 |
| 50% | 2.9 | 1.9 | 1.7 | 1.4 | 1.1 | 0.9 |
| 40% | 2.5 | 1.7 | 1.5 | 1.3 | 1.0 | 0.9 |
| 30% | 2.0 | 1.5 | 1.4 | 1.2 | 1.0 | 0.8 |
| 20% | 1.5 | 1.2 | 1.1 | 1.0 | 0.8 | 0.7 |
| 10% | 1.2 | 1.0 | 1.0 | 0.9 | 0.7 | 0.6 |
| 5% | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 |

In addition to labor costs, there are a number of non-labor or direct costs that influence the total cost of a research project. These include long-distance telephone charges, purchased sample or lists, reproduction, faxes, delivery charges, travel, etc. There may also be subcontractor fees or charges for special services such as translating and/or administering multi-lingual surveys, the use of sophisticated data analysis procedures, or presentations.

When estimating a project, a research firm will typically break the project down into stages or tasks. Costs are then assigned by task either as a lump-sum amount or by determining the number of hours associated with a task and multiplying those hours by the labor rate of the person performing the task. When requesting a proposal, responding firms should be asked to break down their costs by a specified list of tasks. This will allow those at the transit agency evaluating the responses to better compare the amounts charged and to better evaluate the amount of effort being expended on any given task.

As demonstrated above, the costs of customer research are a function of three or four factors. Therefore, research firms responding to a request for proposal with clearly specified tasks and criteria are likely to submit budgets within a narrow range – typically ranging 10 percent around the average bid amount. When evaluating research proposals, the client should be aware of extremely low bids. It is likely that this firm has left out certain elements and/or the technical quality of the resulting project may not be as good. Alternatively, the client may be faced with a change order requesting more money mid-way through an important project when you have little room to maneuver.

Generally speaking, qualitative research projects are less costly than quantitative efforts. A “typical” focus group with customers averages between \$2,500 and \$3,000 per group. These charges include cost of recruiting, facility rentals, moderating, analysis and reporting, respondent fees, and incidental charges.

While the “bottom line” cost of a typical qualitative research project is less than a quantitative program, on a per respondent basis, qualitative research is very expensive – between \$250 to \$300 per respondent compared with anywhere from \$20 to \$50 per respondent for survey research. Moreover, because focus groups and other qualitative research work is less “scientific” than quantitative research, there may be an even greater temptation to cut costs. The same careful attention, therefore, should be paid to the design of qualitative research as to quantitative research. A lack of commitment at this point because of the perceived relatively small “investments” in this effort can lead to less than satisfactory results. Transit agencies, or the suppliers responding to a proposal request may be tempted to

economize by eliminating elements that help contribute to an effective focus group session. However, as illustrated below, reducing or cutting back on elements associated with qualitative research can diminish the effectiveness and potential application of any results.



EXHIBIT 11
POSSIBLE IMPLICATIONS OF FREQUENT ECONOMIZING STRATEGIES
EMPLOYED IN QUALITATIVE RESEARCH

| ECONOMIZING STRATEGIES | POSSIBLE IMPLICATIONS |
|--|---|
| Conduct the session in the agency's conference room instead of facility specifically designed for focus groups | <ul style="list-style-type: none"> Lack of separation between focus group participant and agency representatives can discourage free flow of thoughts. |
| Avoid financial incentives for potential participants. | <ul style="list-style-type: none"> Those still volunteering to participate may not feel as obligated to provide their thoughts on the subjects raised. Lack of an incentive may cause a bias in the groups that would be difficult to control without careful screening. Groups may favor those who have lower incomes or are economizers by nature. Also may favor those with a specific agenda or message to deliver rather than a representative group of participants. |
| Avoid using an "outside" panel moderator. | <ul style="list-style-type: none"> Can result in less-than-candid input from respondents regarding key issues. Moderator may be too close to the subject or vested in the outcome to be unbiased. High potential from peers or superiors to make sure outcome of groups supports the management's position. Results may be suspect because of a lack of trust in objectivity of moderator. |

Estimating The Value of Information

While all information has at least some inherent value, not all decision problems facing an organization require customer research. In a number of situations, it is best not to conduct customer research at all. These situations include:

- A Lack of Sufficient Resources:** There are two situations when a lack of resources should preclude the use of customer research. First, an organization may lack the funds and/or human resources to do the research properly. For example, a project may call for a sample size of 800 interviews to provide a reliable estimate. However, due to the low incidence of qualified respondents in the population, the budget only allows for 200 interviews. In this latter case, the quality and reliability of the information may be highly suspect. Alternatively, funds may be available to do the research properly, but insufficient to implement any decisions resulting from the research. For example, customer research may show a need for the construction of new bus shelters or the purchase of new buses for which an agency has no budget and no viable means of obtaining money for this major capital investment.

- **The Research Results Would Not Be Useful:** Sometimes research is conducted to gather information that is of little use for decision-making. For example, consider a study that finds that the primary reason former riders no longer ride transit is because they have purchased a car. A service planner would be hard pressed to use this information.
- **Poor Timing in the Marketplace:** Market or customer research should not be undertaken if the opportunity for the successful introduction of a new program or service has already passed or if the research cannot be completed in a timely enough manner before the decision can be made.
- **The Decision Already Has Been Made or Is Predetermined:** Decisions are driven by many factors. In some cases, the nature of the decision is predetermined or management has made up its mind as to what the decision will be. No amount of information will change their minds. Here, undertaking a marketing research study not only is a waste of money but also may raise a number of ethical questions.
- **Managers Cannot Agree On What They Need to Know:** Although it may seem obvious that research should not be undertaken until objectives are specified, it sometimes happens. More often, important potential users of the research are not consulted regarding their information requirements. On the other hand, these users are unable to agree on the research purpose and information requirements. Despite these drawbacks, an organization may simply say, "Well, let's just go ahead and do the study anyway and maybe we will better understand the problem and know what steps to take." Here, the wrong phenomena may be studied or key elements needed for management decision-making may not be included.
- **The Information Already Exists:** There is a wealth of secondary and primary research available to all organizations. Sometimes, one department or division of an agency may have undertaken a study that another department knows nothing about. Under these circumstances, additional research is redundant and a waste of money.
- **The Costs of Conducting Research Outweigh the Benefits:** There is a cost to gathering any information. Even a trip to the local library to conduct a data base search of relevant literature has costs attached in terms of manpower, computer time, and copying or printing charges. Research should be undertaken only when the expected value of the information is greater than the cost of obtaining the data.

How should a transit agency go about determining the value of customer research? While there are elaborate models to estimate the value of information, a simple, qualitative analysis can be undertaken. The value of customer research to a transit agency depends on three main factors:

- 1) The cost of making a wrong decision,
- 2) The degree of uncertainty surrounding the decisions or actions, and
- 3) The amount of uncertainty the customer research can reduce.

Each of these factors should be assessed carefully to estimate the value of the research. Then the expected value of the research can be compared to the expected costs of conducting the research and a decision made as to whether the benefits of the research outweigh its costs. **As a general rule of thumb, the potential value of the information should be at least two or three times the entire cost of the customer research.** Roadmap 2 illustrates those factors that determine the value of customer research.



ROADMAP 2 DETERMINING THE VALUE OF CUSTOMER RESEARCH

| <i>Factors Indicating High Value</i> | <i>Factors Indicating Low Value</i> |
|--|---|
| ✓ The cost of selecting a “bad” alternative (“go” error) or failing to select the best alternative (“no-go” error) would be relatively high. | ✓ The cost of selecting a “bad” alternative (“go” error) or failing to select the best alternative (“no-go” error) would be relatively low. |
| ✓ There is a high degree of uncertainty about which alternative to choose, based on existing information. | ✓ There is relatively little uncertainty about which alternative to choose, based on existing information. |
| ✓ Customer research is likely to reduce a large proportion of the existing uncertainty. | ✓ Customer research will remove only a small amount of uncertainty surrounding the decision. |

Customer research is conducted to **reduce the risk** inherent in any decision and the **cost** of making the wrong decision. There are two basic types of decision errors as illustrated in Roadmap 2. They might be labeled “go” errors and “no-go” errors. “Go” errors are the more obvious of errors. **“Go” errors** result when a decision-maker takes a course of action that proves to be costly or unsatisfactory. “Go” errors are also frequently referred to as “down-side” risk. The simplest example of when a “go” error might occur is in the instance when an agency is considering the introduction of a new program or service. The basic decision is whether to proceed with the introduction. A “go” error would result if the agency went ahead with the introduction and it failed.

“No-go” errors are more obscure. “No-go” errors result when a decision-maker either fails to take some action that would have positive results, or does not select the alternative that would have the most positive results, choosing instead some less positive course of action. “No-go” errors may also be viewed as “opportunity costs.” A “no-go” error might also occur in the introduction of the same new program or service discussed above. Here, however, the agency may have several alternatives to consider. For example, structuring a new route involves questions regarding the frequency of service, number of stops, and whether or not transfers are required. A “no-go” error would result if the agency introduced this new route without the optimal configuration of these characteristics.

In general, the greater the potential gains or losses inherent in a decision or set of decisions, the greater the cost of uncertainty. Customer research that can reduce very costly uncertainties has commensurably more value.

The **amount or degree of uncertainty** is a separate issue from the cost of uncertainty. In some cases, the decision-makers may be sure about what decision to make. There may already be a large amount of information available about the issues at hand. In other cases, there may be a large degree of uncertainty surrounding the decision. Moreover, there is little or no information about the issues available.

Here, the evaluation of the value of information comes down to two basic questions:

- 1) What is the cost of making a “go” or “no-go” error?
- 2) How much uncertainty surrounds the decision?

The greater the cost of making an error and the more uncertainty surrounding the decision, the greater the value of customer research.

The final issue in determining the value of customer research is an evaluation of whether the proposed research can **reduce the uncertainty**. No single research program can provide perfect information – that is, completely reduce the uncertainty inherent in the decision. Some proposed research addresses nearly all the issues or problems at hand, greatly reducing the uncertainty. For example, if a transit agency wants to know just before an election the proportion of voters likely to support an initiative on the ballot supporting a tax increase for an improved bus system, it could design a research program that would reduce nearly all uncertainty. In other cases, only some of the uncertainty can be reduced. For example, in the same voter survey a transit agency may want to gain an understanding of the relative importance voters place on a complex set of issues surrounding the development of a transit plan. Here, a well-designed customer research program may reduce only a relatively small part of the uncertainty.

Even when a customer research program can address a specific set of questions or issues, the degree of uncertainty that can be reduced may depend on how the research is going to be used. If the research is being used to describe the environment in which a new product or service is going to be introduced, a great deal of uncertainty may be reduced. For example, if a transit agency wants to understand the degree to which riders use existing programs or services, a research program could be designed that provides nearly definitive results. On the other hand, if the research is being used to predict the success of a new product or service, the results may be far more tentative. For example, determining the extent to which riders will continue to use existing programs and services in the future would lack the same degree of certainty as the previous question.

In summary, **research should be conducted only when the benefits of the research outweigh the costs of conducting the research**. The benefits of the research can be estimated by making a thorough evaluation of the costs of making the wrong decision, the degree of uncertainty surrounding the decision, and the extent to which this uncertainty can be reduced through a well-designed and conducted customer research program.

Determining Resource Requirements

Conducting customer research often involves several people. Large research projects may require the services of a hundred or more people. Different aspects of the work may have special roles and responsibilities to be formed by different people. Some of these people may be internal personnel at a transit agency. In many cases, outside firms – research, planning, marketing, and/or advertising consultants – may also be used. During the planning and initiation of a research effort, the major focus is on the roles of:

- 1) Those who sponsor the survey, pay for it, and seek the information it will generate, and
- 2) Those who actually design and conduct the research.

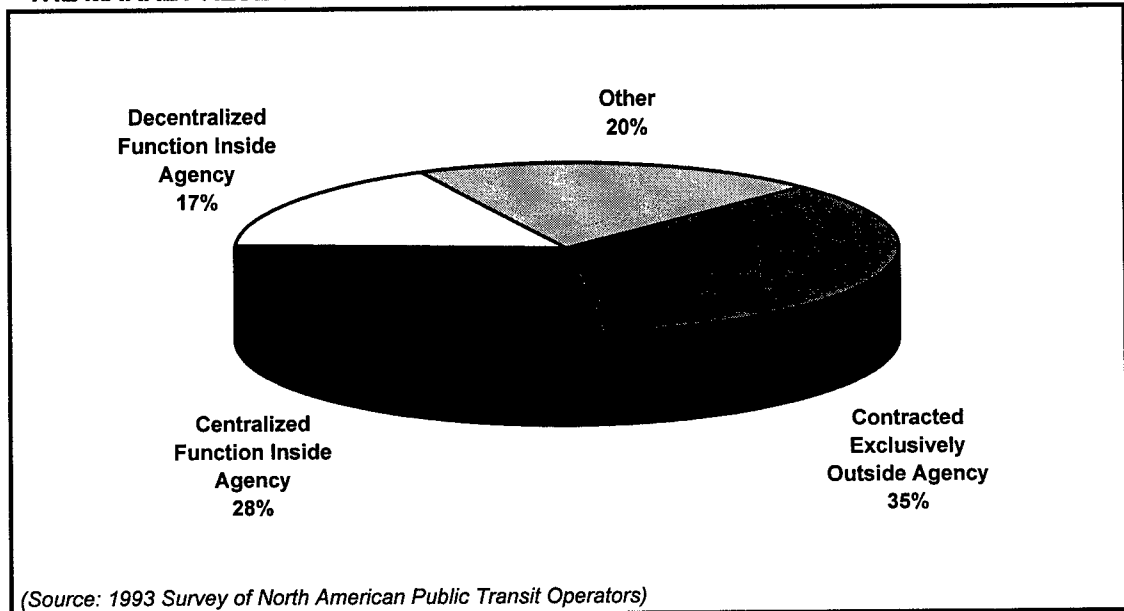
In general, managers can acquire the necessary information for decision-making from two basic sources: in-house resources and external suppliers. In-house resources may be an actual research department; however, one or two people may be assigned the responsibility of managing the market research function on an ongoing basis. In other cases, a person may be assigned the responsibility of managing a specific research effort.

A survey of transit agencies showed that 28 percent have a centralized market research function or department within the agency. More (37 percent) rely on a more decentralized function or some other organization. More than one out of three agencies have no in-house resources, relying exclusively on outside agencies to perform the market research function (Figure 13).^{xxxix} As would be expected, the

market research function varies by the size of the agency. Large agencies most often have central market research departments. Mid-sized agencies are characterized more by contracting out market research exclusively.



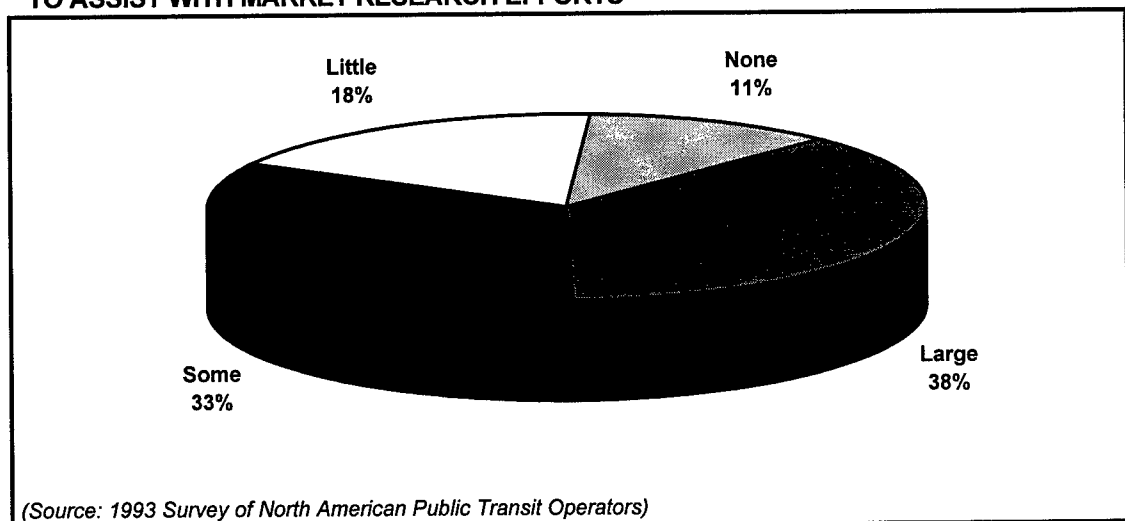
FIGURE 13
THE MARKET RESEARCH FUNCTION



Usually, transit agencies use a mix of in-house and external resources. Over seventy percent of agencies that have done market research in the past three years used outside consultants to assist in their efforts to "some" or "a large" extent (Figure 14). Large agencies are more likely to use external resources than are mid-sized or small agencies. Transit agencies most often rely on market research consultants or firms and/or transportation planning consultants to assist them in their market research efforts.



FIGURE 14
EXTENT TO WHICH TRANSIT AGENCIES USE OUTSIDE CONSULTANTS TO ASSIST WITH MARKET RESEARCH EFFORTS



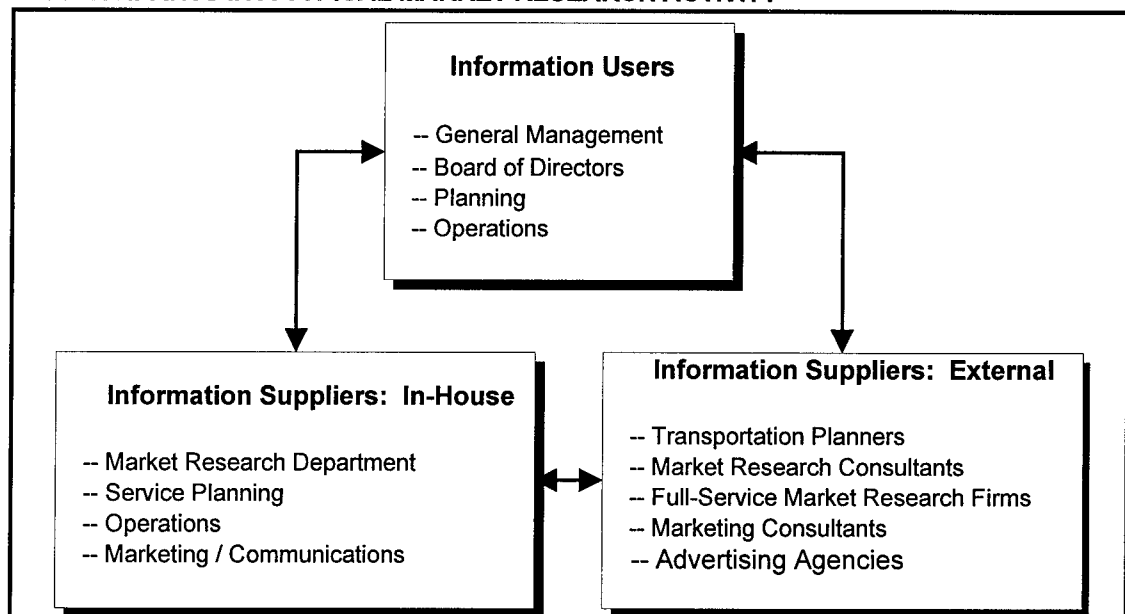
Typically, outside suppliers get their direction from and provide information to an internal contact assigned to the research. This internal person carries out several tasks including:

- Translating into specific information requirements the problems and issues as identified by sections within the agency who will be using the information,
- Deciding how the information will be collected and by whom, and then
- Working with agency staff to interpret the findings.

Figure 15 shows the interaction between the participants in a typical market or customer research activity.



FIGURE 15
PARTICIPANTS IN A TYPICAL MARKET RESEARCH ACTIVITY



As Figure 15 illustrates, there may be many different participants in the research process. Transit agencies frequently do a good job of identifying who within the agency should be involved in the research effort. Moreover, they will frequently include external information suppliers early in the process. For example, projects related to marketing and communications agencies will generally include representatives from marketing as well as their advertising agency. Projects related to service planning will generally involve service planners and transportation planning consultants.

When developing a research project, managers also should consider who beyond an organization's management team might be research customers. The nature of the research and the methods of presentation may relate to these other clients. Others beyond internal management may have a profound ability to support the application of research or hinder its effectiveness. Included in this external research client group may be:

- An agency's governing board or council.
- Other government agencies with oversight or cooperative arrangements with the transportation agency (i.e. metropolitan planning organizations (MPOs)), state and federal governments, and the local jurisdictions in which an agency operates.

At most transportation agencies, very few major decisions are made without board or council involvement. Yet, many of these governing groups are never exposed to research available within their organizations. In some cases, this is deliberate; because senior management doesn't want to expose board members to "excessive" detail. In others because senior management itself does not feel confident enough in the research to expose themselves to board questioning. Moreover, in some cases, they fear the board is not capable of understanding the research.

Though board makeup varies considerably from agency to agency, the later fear "of the board not understanding" is probably the least valid reason for not presenting research to the group. Many, if not most, governing bodies are made up of elected officials (either directly elected or on the board by virtue of being elected to another office). Research – in the form of polling – is usually an integral part of these officials' careers. In many cases, they are far more familiar with the value of market research than a transit agency's senior staff. Other boards include members of the business community with varying levels of marketing research sophistication.

The key to working with these governing agencies is for senior management to conduct an informal survey of what level of sophistication and detail the board is interested in before research results are presented to them. For major projects, it is probably a good idea to have board participation and input into the initial planning of a research project. If board members have participated in the development of a research project it is a great deal more likely they will "buy into" its findings.

The results of a particular research project also may be of interest to a variety of other government agencies within a transit operation's jurisdiction. For example: market share/ mode split information may be of interest to an MPO, or attitudes toward transit performance may be of interest to an agency's funding contributors such as state governments.

One way to ensure that research is used by all appropriately is to conduct a "research inventory" check of agencies that are likely to share research information. This inventory combined with discussions with other potential information users should be conducted before a research project is fielded.

Understanding the needs of other governmental bodies with a legitimate interest in the transportation agency's research can be helpful in planning research projects. Cooperation between various agencies can ensure that apples are indeed compared with apples and that one group doesn't unnecessarily duplicate the efforts of another.

Though the nature of the market research function frequently dictates that outside help be sought, there are cases when certain types of research can be done more efficiently and economically in-house. A caveat to all the examples listed below is that someone on staff has the expertise in market research and the time needed to conduct the studies.

- In situations where survey work is continuous, requiring a fixed level of staffing, research is frequently most effectively conducted in-house. For example, some agencies are now conducting monthly mini-studies to track various public perception shifts on an almost "real-time" basis. It is the type of project where a fixed level of staffing can be determined and hired at likely savings to the agency.
- Small-scale standardized route or station-specific studies can frequently be conducted efficiently utilizing open in-house staff time as available. If a series of these types of studies can be planned – well in advance – appropriate staffing might be retained to reduce the cost of outside consulting.

- Hybrid projects where work is split between outside consultants and in-house staff. Many annual or semi-annual tracking surveys lend themselves to a higher level of in-house participation for design and analysis. The outside research firm's roll may be restricted to data collection and entry with all the planning, processing and analysis conducted in-house.

The common element in all the above examples is that they are routine repetitive projects, for which staff time can be regularly allocated. Research efforts that require intensive effort for short periods do not lend themselves to efficient use of in-house staff.

At some time, nearly all research users will use the services of outside research specialists. The role of these specialists may be limited to raw-data collection, with the research approach, questionnaire, and sampling method provided by the transit agency. At the other extreme, the agency may assign the entire task to the outside consultant who then becomes responsible for every step up to the completed report and action recommendations. Many related considerations will influence the decision to “go outside”, including:

- Internal personnel may not have the **skills or experience**. Few but the largest agencies have specialists in those four major resource areas that are usually associated with market research tasks: 1) focus group moderators, 2) data collection (including facilities and personnel), 3) statisticians, and 4) project managers. In addition, outside suppliers have special facilities and/or expertise – an established telephone bank, focus group facilities, bilingual interviewing – that can support a research task. Frequently, outside assistance is used to gain this specialized expertise. Moreover, outside help may be called in to **boost internal capacity** in response to an urgent deadline.
- It may be **cheaper** to go outside for services. Specialists who have encountered similar problems may be more efficient in dealing with the problem, and because they are not on staff, there is no risk of under-utilizing their time.
- **Political considerations** may dictate the use of outside research specialists whose credentials are acceptable to all parties in an internal policy decision. An outside supplier of research services can provide an objective, third-party view on such an issue. Also, an outside supplier can be used to impart information that may be difficult for an internal staff member to put forth.
- Finally, customer research is used increasingly in litigation or in proceedings before regulatory and legislative bodies. The **credibility of the findings** generally will be enhanced if the study is conducted by a respected outside resource. Moreover, this kind of research often is subjected to critical questioning and scrutiny. It is more likely to stand up if designed to high standards that may exceed those used within the agency for routine decision-making purposes.

Drafting the Research Request

If a decision is made to use outside resources to assist in the research effort, there still remains the question of which consultant or supplier to retain. Transit agencies typically are required to use a formalized “request for qualifications / proposal” to identify and select qualified firms. It is very important that this research request ask responding firms to provide recommendations on the most appropriate research design for the decision problem.

The components of a good research request should include, but are not limited to the following seven major elements:

- **Action** – the actions that are contemplated on the basis of the research.
- **Origin** – the events that led to a need for the decision to act. Even though the events may not directly affect the research that is conducted, they help the researcher understand more deeply the nature of the research problem.
- **Information** – the questions that the decision-maker needs to have answered to take one of the contemplated courses of action.
- **Use** – a section explaining how each piece of information will be used to help make the action decision. Supplying logical reasons for each piece of the research ensures that the questions make sense in light of the action to be taken.
- **Targets and subgroups** – a section that describes from whom the information must be gathered. Specifying target groups helps the researcher design an appropriate sample for the research project.
- **Logistics** – a section that gives approximate estimates of the time and money that are available to conduct the research. Both of these factors will affect the techniques finally chosen and avoid the submittal of designs that simply cannot be completed in the time frame available or that are too expensive given the current allotments.^{xi}
- **Comments** – a final section of the research request can be used to include other comments and information relevant to the project that will help the writer better understand the problem and address the scope of work. This may be additional background information or may simply focus on the logistics of submitting the proposal – for example, date and time due – or the basis for evaluating responses.

Roadmap 3 illustrates how the request can be developed so that potential suppliers can effectively address each of these components. Under this scenario, a transit agency will be carrying out construction activities that will result in temporary service disruptions. The research will focus on developing information that will help the marketing and operations staffs develop a communications program that will help minimize customer dissatisfaction and possible loss of riders.



ROADMAP 3 COMPONENTS OF A RESEARCH REQUEST

| Component | Example |
|--|--|
| ✓ Decision: Describe the decision problem facing the agency that requires research. Ensures that the response focuses on what information is needed and provides a guide to the researcher in creating the research design and analysis plan. | How to communicate information to customers about planned service disruptions. |
| ✓ Origin: Provide a statement of the events that led up to the decision to act. | Construction at rail stations will cause schedule changes as well as temporary closures of the stations. |
| ✓ Use: Explain how the information will be used to help make the actual decision. Gives reasons for each piece of the research and ensures that the questions make sense in light of action to be taken. | Results will be used by the marketing departments and operations division to develop an integrated communications program to minimize customer dissatisfaction and possible loss of riders. |
| ✓ Information Requirements: List the questions that need to be answered to take action. Carefully considering this area improves the efficiency of the research and ensures that the questions make sense in light of the action to be taken. | Provide insight into experience with service disruptions and impacts on satisfaction and perceptions of effectiveness of methods to notify riders about service changes. Identify the best methods of communication and the information required. Assess reactions to current and proposed materials informing riders about service disruptions. |
| ✓ Targets and Subgroups: Describe from whom the information must be gathered for the action to be taken. Helps the researcher design the sample for the research project. | Current riders of rail lines that will be experiencing service disruptions. |
| ✓ Logistics: Time and budget constraints affect the research design selected for a project. Provide approximations of the amount of money available for the project and the amount of time that exists to complete the project. With this information, a more realistic research approach is likely to be developed. Also, responses will be based on a similar set of assumptions. Comparisons among proposals can focus on other issues, such as quality, expertise, etc. | Service disruptions are scheduled to begin within the next ten to twelve weeks. At least four weeks are needed to produce and place the final communication materials. Moreover, announcements should begin at least one to two weeks before the schedule disruption. The agency has budgeted approximately \$20,000 for this project. |
| ✓ Comments: Include other comments and information relevant to the project that will assist the researcher in fully understanding the nature of the problem. | Submit a written statement of qualifications and a scope of work by [date]. Interviews will be held by phone on [date] and a final decision made by [date]. |

Selecting the Consultant Team

In many cases, the final decision of what consultant to use is based on the estimated cost for services. In some cases, agencies must accept the “low-cost” bid. Past performance on other contracts also is an important consideration. The judgment of which supplier to use should be made only after the following steps have been followed:

- A thorough search for names and companies who have acknowledged expertise in the area of the study.^{xlii}
- The selection of a small number of bidders.
- Interviews with the person who would be responsible for the project, asking for examples of work on similar problems, their procedures for working with clients, and the names of previous clients who would provide references.
- A check of references of each potential supplier, with special attention to comments on their depth of competence and expertise, their creativity in dealing with problems, and the quality and adequacy of resources available.
- Selection on the basis of how well the problem and objectives have been understood, the comments by the references, and whether the quoted price or fee is a good value in light of the research approach that is proposed. Seldom is the lowest quotation going to be the best value. To minimize the problem of comparability, have all bidders respond to the same, precise study specifications.^{xliii}

Transit agencies use many methods to evaluate responses to a research request. Some agencies use a highly structured method with points allocated to each criteria used for evaluation. Others use a less formal process, relying more on a qualitative assessment of suppliers that includes a general comfort level with the firm and the key personnel.



ROADMAP 4

CRITERIA FOR EVALUATING A MARKET RESEARCH PROPOSAL

If more than one research firm is asked to submit a proposal, the prospective client or “sponsor” should indicate how the successful proposal will be determined. Factors that might be used to select the contractor could include:

- | | |
|---|---|
| ✓ | Understanding of how the results of the research will be useful. |
| ✓ | Recognition of the types of information that will be used. |
| ✓ | Ability to provide the necessary resources, that is, personnel, facilities, equipment, etc.. |
| ✓ | Relevant experience of the research firm. |
| ✓ | Background / experience of individuals who will be assigned to the work. |
| ✓ | Recognition of the limitations of the research. |
| ✓ | Specificity, with respect to the procedures to be used, can and should be outlined in detail before beginning the work. |
| ✓ | Cost of services. |
| ✓ | Statements of commitment to follow ethical and professional procedures at all time. |

(Source: Council of American Survey Research Organizations (CASRO) Code of Business Practices.)

Planning Meeting

Whether using outside firms and consultants to assist in the research effort or an in-house research department, the transit agency and the researcher have certain responsibilities to ensure the most effective communications and use of resources throughout the research effort. A planning meeting following the selection of the consultant team represents an excellent opportunity to openly discuss all aspects of the proposed research program and to reach a consensus on the ultimate research purpose and study objectives.

Often those requesting the research are unfamiliar with the research process or the specific methodology that is proposed. They may be executives, managers, or professionals whose areas of expertise are not research-related. Their understanding of the customer research process may range from accurate perceptions to only vague notions. On the other hand, they're also likely to be quite familiar with the problems, decisions, actions, conditions, and perhaps the "conventional wisdom" of their own discipline, industry, or institution. To increase the usability of the research results and to ensure that information obtained is targeted to the decisions at hand, during the initial planning meeting the managers requesting the research should clearly indicate the ultimate purpose of the survey. They should also give researchers enough background information to provide them with a basic understanding of issues being considered and potential application of research results. Finally, managers should be prepared to provide researchers with clear guidelines concerning the time requirements for the research effort and the general level of funding or resources that are allocated to the project. The overall sponsor's role in carrying out research activities is outlined in Roadmap 5.



ROADMAP 5

CHECKLIST FOR SPONSORS INITIATING MARKET RESEARCH

| | |
|---|--|
| ✓ | Furnish the researchers with sufficient background information about the setting and operations. |
| ✓ | Provide a description of the issues, problems, or uncertainties that lead to consideration of market research. |
| ✓ | Indicate the type of information that would solve the problem or reduce the uncertainty. |
| ✓ | Describe what decisions, choices, or actions will be based on the research results. |
| ✓ | Provide the researcher with information regarding the value of the information, based on potential risks or opportunity costs. |
| ✓ | Specify the time requirements and level of funding and other resources allocated to the project. |

Researchers should be thoroughly familiar with the capabilities and limitations of customer research in general, and specifically the methodology proposed. The researcher should inquire thoroughly about the information needs, the nature of the decisions, and actions to be based on the research results, and the overall operation of the agency sponsoring the research. The researcher can then portray the alternatives and point out the research methods that might be used.

To achieve this dialog, the sponsors of the research program must have a sense of trust in those conducting the research. They should feel free to provide the information required in order for the researcher to fully understand the decision problems and information requirements. The overall role of the researcher in carrying out research activities is outlined in Roadmap 6.



ROADMAP 6

CHECKLIST FOR RESEARCHERS DURING PROJECT INITIATION

| | |
|---|---|
| ✓ | Know the capabilities and limitations of survey research and indicate them to sponsors when appropriate. |
| ✓ | Obtain background information about the operations, policies, and procedures of the sponsor. |
| ✓ | Inquire about the nature of the uncertainty, problems, or issues to be the focus of the research. |
| ✓ | Ask what decisions, choices, or actions are to be based on the results of the research. |
| ✓ | Seek indications of the time requirements for the research and the resources available. |
| ✓ | Describe the type of cooperation and participation that will be required of the sponsor over the course of the project. |
| ✓ | Explain what ethical responsibilities regarding the project the researcher has to the sponsor and the respondents. |
| ✓ | Encourage the confidence and trust of the sponsor through candor and professional conduct. |

The results of this planning meeting should be summarized in a final work plan. The work plan should clearly outline any changes in or additions to the original Scope of Work that may have been presented in the consultant's original response to the research request. Moreover, this work plan should contain a detailed schedule of all tasks and the resource requirements required for each task. This work plan should form the basis for all work on the project. Many agencies include this final work plan as part of the consultant contract. Any deviations from this work plan should be agreed to by both parties – the agency and the researcher – and documented in writing.

Getting Started: The Three Keys To Success

Market and customer research provides an important link between the organization and its market environment. The process of conducting market and customer research consists of a series of stages or steps that guide the research from its conception to the final recommendations. **The initial planning for a research project is key to its success.** The first step in planning for a research project is to agree on the research purpose. The specification of the research purposes involves the identification of the:

- Problems and opportunities to be studied,
- Decision alternatives to be evaluated, and
- Users of the research.

To be successful, the agency must plan for how the information will be used and integrated into strategic decision-making after it has been collected and analyzed. Active involvement by representatives of different areas throughout the agency in the planning stages will increase the understanding of the process, strengthen the acceptance of the research results, and inspire a commitment to improvement. This involvement should include:

- Determining who within the agency will be involved in the planning phase.
- Understanding how the various levels of the organization will obtain and use the survey results.
- Involving the entire organization in the process; stimulating discussion, confronting objections and issues.
- Communicating the intent of the research to employees.

Finally, agencies should decide early in the process whether they will use external resources – market research consultants and suppliers – to help conduct the research. Early involvement of these persons or firms when needed will enhance the overall value of the research.



Using the Right Tools

To Measure and Manage Customer Satisfaction, Value, and Loyalty

TOOLBOX

- On Bus Seats, Handrails & On-Time Performance: Customer Satisfaction Measurement – The Critical Link Between Customers and Transit
- The People On The Bus Go Up & Down: Determining Who to Interview
- Vanpools, Buses, & High-Speed Rail: Determining Your Vehicle – Qualitative and Quantitative Research
- Taking The High Road: Conducting Research – From Questionnaire Design to Sampling
- Raising The Hood: Data Analysis and Interpretation

Customer Satisfaction Research: A Key to Keeping Customers

In recent years, increasing emphasis has been placed on customer retention programs. American business in general, and many transit agencies, have become increasingly committed to the idea of customer satisfaction and product-service quality as a means of retaining their existing customer bases. The measurement of customer satisfaction and its link to product-service attributes is the vehicle for developing a market-driven quality approach.^{xliii} So important is customer research that winners of the prestigious Malcolm Baldrige National Quality Award* are expected to use customer research to be able to describe how the company:

- Determines current and near-term requirements and expectations of customers, addresses future requirements and expectations of customers, and evaluates and improves its processes for determining customer requirements and expectations.

* The Malcolm Baldrige National Quality Award was established in 1987 by the U.S. Department of Commerce. The annual award recognizes U.S. companies that have excelled in quality achievement and quality management. It recognizes and encourages commitment to quality products and services.

- Provides effective management of its interactions and relationships with its customers and uses information gained from customers to improve customer relationship management processes.
- Demonstrates commitments to customers regarding its products and services and how these commitments are evaluated and improved.
- Determines customer satisfaction, customer repurchase / reuse intentions, measures customer satisfaction relative to competitors, and evaluates and improves its overall processes and measurement scales for determining customer satisfaction.
- Summarizes trends in the company's customer satisfaction and trends in key indicators of customer dissatisfaction.
- Compares the company's customer satisfaction results with those of competitors.^{xliv}

Many transit agencies are following this trend with the introduction of Customer Service Initiatives. For example,

The Metropolitan Council of Transit Operations (MCTO) in Minneapolis implemented a program called, *The Customer is the Boss* initiative. As part of this initiative, the agency uses a Customer Service Index (CSI) to gauge its performance in satisfying customers' needs from the customers' perspective.

Various approaches to customer retention research programs have been developed to meet differing requirements. No one methodology is perfect. However, over the past several years, general principles and guidelines have developed that serve as a starting point to developing a research program that achieves the desired goals. The purpose of this chapter is to discuss and illustrate some of the basic principles of setting up a successful customer research program. **A "successful" program is one that provides relevant information that can be used to plan for and develop transit services, and to develop marketing strategies targeted at achieving ridership growth by retaining existing customers.** This chapter's focus is on the design and implementation of a customer research program targeted at retaining existing riders. An effective customer satisfaction research program often is an integral part of this overall effort.

This chapter presents the basic tools for conducting a customer satisfaction measurement research study. While the focus is on customer satisfaction research, much of the material is applicable to any market and customer research effort.

The Basics of Customer Satisfaction Measurement

On the surface, the task of conducting customer satisfaction research seems simple. Transit agencies conducting customer satisfaction research typically have taken a report card approach to measuring customer satisfaction, usually conducting on-board surveys or intercept interviews at major points of departure and arrival. Evaluations of performance quality are collected periodically, often while completing other research such as origin and destination studies. Results from this research provide an indication of improvement or deterioration since the last measurement.

The primary limitation of this approach is that it does not provide a clear indication of what improvements to make. For example, an agency may find itself receiving poor ratings on one attribute – for example, inside cleanliness of buses – and move rapidly to make improvements in this area. Results from the next wave of interviewing several years later show that there has been no change in overall ratings or satisfaction with the system. Faced with this situation and in light of declining budgets, transit agencies often find themselves questioning the value of this customer research. Rather than questioning the design and methods used, agencies find themselves using the research less and less, and over time missing reporting periods or delaying reports until the information is no longer timely.

What seems a simple process – asking customers to evaluate an agency's performance – actually is much more complex in practice. Without proper assistance, agencies often find:

- A lack of discrimination in customer responses,
- Highly skewed results,
- Unstable findings that vary randomly between reporting periods,
- Inability to determine the factors driving satisfaction,
- Substantial amounts of missing data,
- Meaningless or unimplementable conclusions (e.g., add more routes),
- Interpretation problems,
- Lack of organizational buy-in, and
- Nonuse of study results.

Those who consider customer satisfaction measurement as a simple report card type survey are not realizing the full value of customer satisfaction research as a management information system. To begin to understand the full value of a customer satisfaction measurement system one must begin with a definition:

Customer satisfaction measurement is a management information system that continuously captures the voice of the customer through the assessment of performance from the customer's point of view. Customer satisfaction research measures external, or performance quality.

An effective customer satisfaction measurement system must be able to determine how best to improve customer perceptions of product and service quality. Actionable customer satisfaction research provides the information that transit managers need to make changes in the processes that affect customer perceptions of service quality. The purpose of this chapter is to outline some basic tools and methods that can be used to guide and improve the customer satisfaction measurement process. Central to the effectiveness of a customer satisfaction measurement program is the accomplishment of the following steps:

- 1) Identify the market segments, customer and potential customer groups that are most likely to be affected by service quality improvements.
- 2) Determine the critical performance attributes that result in customer satisfaction.

- 3) Develop a research design and methodology that yields reliable and statistically valid data and analyses upon which to base business decisions.
- 4) Assess the performance of the agency.
- 5) Demonstrate the relative impact of the various satisfiers and dissatisfiers on overall perceptions of service quality at an agency.
- 6) Identify actions that will lead to increased satisfaction.

The following Roadmap highlights criteria for improving the process of customer satisfaction measurement. This chapter identifies basic tools to achieve these improvements.



ROADMAP 7 CUSTOMER SATISFACTION MEASUREMENT CRITERIA

| | |
|-------------------------------------|--|
| ✓ Coverage | of markets, customer populations, products and services, competition. |
| ✓ Frequency | of measurement, from ad-hoc to periodic to continuous. |
| ✓ Flexibility | to adapt to unique market and customer circumstances. |
| ✓ Validity | of data – data collection methods, questionnaire design scales, etc. |
| ✓ Representativeness | of data – sample design and nonresponse bias issues. |
| ✓ Thoroughness | of data – the degree to which all aspects of performance quality are measured, the use of both qualitative and quantitative data and information, and the nature and extent of comparative information (benchmarks). |
| ✓ Specificity | of information – actionability. |
| ✓ Precision | of data – confidence levels and intervals for random samples. |
| ✓ Nature and extent | of data analyses – relevance, validity, usefulness, frequency. |
| ✓ Involvement | of employees and management in research design. |
| ✓ Continuous improvement ... | of research process. |

Who to Interview

At first glance, most organizations conduct their research on customers, who are defined as their existing users. This narrow focus, however, frequently results in a limited view of the environment in which a transit agency operates and may severely limit an agency's ability to take a proactive role in identifying problems and opportunities.

The requirements for the Malcolm Baldrige National Quality Award emphasize the importance of identifying customers:

Identify the market segments, customer and potential customer groups, including customers of competitors, and their requirements and expectations through surveys, interviews, and other contacts.

Defining customers can be difficult and is one of the major challenges in customer satisfaction research. Just who are customers of public transportation? Current riders are certainly customers. But, what about former riders? Former riders are past customers and represent potential customers. What about nonriding members of a household in which a rider lives? These individuals may be influential in determining current and future mode choice. As such, they also represent valuable sources of information about transit performance. Can staunch nonriders – those individuals who will never use public transportation – be considered customers? As indirect beneficiaries of a good public transportation system – improved quality of life, less congestion – and as taxpayers, they may also represent an important “customer” base.

Even when customers are defined simply as existing riders, the decision regarding who should or should not be surveyed is not straightforward. Transit agencies use many definitions of their existing riders. For example,

Metro Transit in Seattle defines a rider as anyone who has taken five or more one-way rides on a Metro bus outside their downtown Free Ride Area in the last thirty days.

MCTO in Minneapolis defines a rider as anyone who rode any MCTO bus in the last year. Milwaukee Transit has defined a rider as anyone who has ridden the bus at least once in the past thirty days.

Differences in defining riders means that comparisons of results for surveys conducted by different transit agencies should be done cautiously.

Interviews among different populations provide different types of insights. We directly relate the decision, then, whom to interview to the decisions facing the agency and the overall purpose of the research (see chapter 4). Interviews with current riders give agencies the central perspective of the entire customer satisfaction measurement program. However, interviews with other groups can be equally important. Interviews with former riders may reveal perceived quality barriers to use, pinpoint fatal flaws, and identify the benefits that customers perceive in switching modes. For example,

Houston Metro found that most former riders are not making the same trip now that they had used Metro for in the past. A failure by the agency to keep up with these former riders at a point when they were making a mode choice decision resulted in significant rider attrition.

Finally, research with nonriders can help establish an industry norm or benchmark. How the market at large perceives public transit or rail compared with other mode choices is perhaps the key element of strategic positioning.



ROADMAP 8 WHO TO INTERVIEW

- | | |
|-------------------------|---|
| ✓ Current Riders | <ul style="list-style-type: none">• Principle population of interest• Final judge of quality |
| ✓ Former Riders | <ul style="list-style-type: none">• Sources of dissatisfaction• Sources of competitive intelligence |
| ✓ Nonriders | <ul style="list-style-type: none">• Principle source of competitive intelligence• Necessary for benchmarking |
| ✓ Stakeholders | <ul style="list-style-type: none">• Sources of public support• Necessary for benchmarking |

Typically when deciding who to interview, focusing on a relatively homogeneous population of customers in any one study is best. For example,

MCTO (Minneapolis) conducts a quarterly study focusing solely on current riders. Also for the past two years, they have undertaken a second research effort, focusing solely on nonriders.

By limiting the population of interest to a particular customer type, the results will be more meaningful and actionable than if the research includes multiple customer groups. When the research includes multiple customer types, attributing study results to an identifiable segment of customers that can be singled out for appropriate action can be more difficult. Finally, an additional advantage is that more interviews with only one type of customer group makes it possible to generalize sample results to this population with greater confidence.

However, it should be noted that there are some advantages to interviewing different groups rather than a homogenous population. By determining key points of attitudinal and behavioral differences between groups, one can gain a better understanding of the possible reasons behind these differences.

Determining Critical Performance Attributes

A critical component of customer satisfaction research is concerned with determining the extent to which existing products and services meet customers' needs, wants, and expectations. Meeting customer expectations results in satisfaction. Exceeding expectations may create strong customer loyalty. Conversely, not meeting expectations results in dissatisfaction and potentially rider attrition.

We formalize expectations as a set of attributes that capture the important issues by which customers evaluate a product, service, or company. These sets of attributes will differ by industry and by company. However, research in academia and industry has identified some broad dimensions on which performance is almost universally judged.

For example, researchers Parasuraman, Zeithaml, and Berry have concluded that service quality can be described adequately using five dimensions:

- **Reliability:** The ability to perform the promised service dependably and accurately.
- **Tangibles:** Appearance of physical facilities, equipment, personnel, and communication materials.
- **Responsiveness:** Willingness to help customers and provide prompt service.
- **Assurance:** Knowledge and courtesy of employees and their ability to convey trust and confidence.
- **Empathy:** Caring, individualized attention the organization provides its customers.^{xiv, xvi}

A variety of industries in both the private and public sector has used these dimensions effectively. They have proven particularly applicable in the public electric and gas utilities environment and they prove equally applicable to transit as Exhibit 12 illustrates.

Within these dimensions, agencies can generate a large list of individual attributes. These dimensions are not independent of each other. For instance, facets of operator attributes and information may overlap somewhat. Moreover, the list of performance attributes has been left purposely vague and un-user friendly in terminology to discourage the use of this list as the appropriate list for any single transit agency.



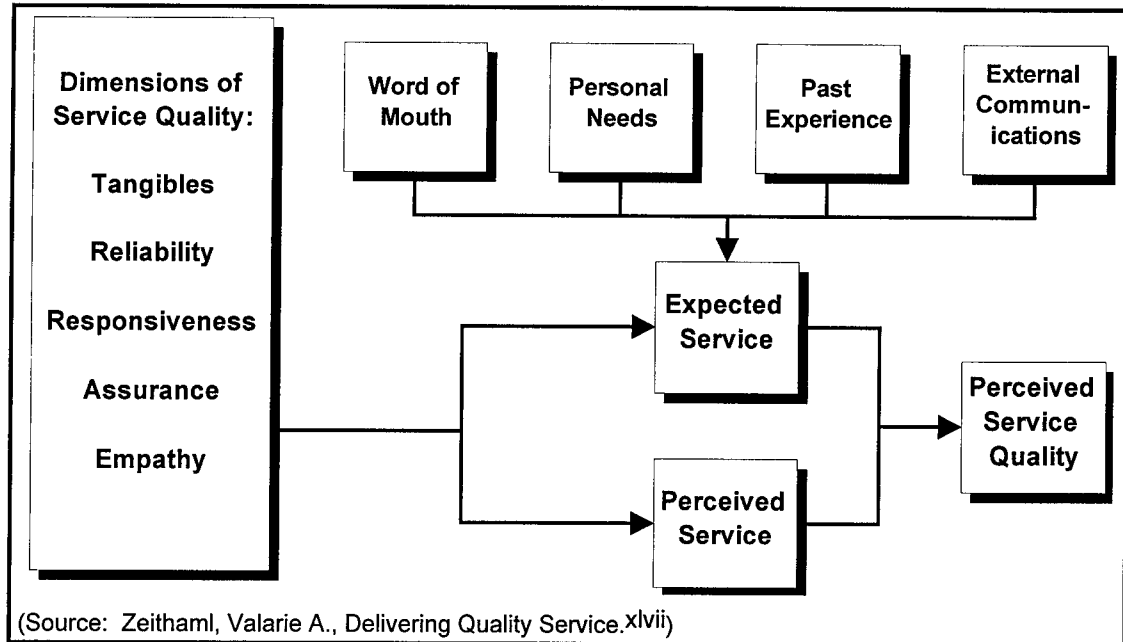
EXHIBIT 12
DIMENSIONS OF TRANSIT SERVICE QUALITY

| Dimension | Performance Attributes |
|-------------------------|---|
| ✓ Reliability | <ul style="list-style-type: none"> • On-Time Performance • Mechanical Dependability • Vehicle Availability • Operator / Driver Availability • Other Disruptions |
| ✓ Tangibles | <ul style="list-style-type: none"> • Operator Attributes (Physical Appearance, Professionalism) • Comfort (On the Bus, Waiting For / Boarding the Bus) • Plant and Equipment (Cleanliness and Appearance of Buses, Cleanliness and Appearance of Boarding / Alighting Facilities) • Cost of Service <ul style="list-style-type: none"> – Prices and Fares – Value - Price Relationship |
| ✓ Responsiveness | <ul style="list-style-type: none"> • Availability of Service (Convenience, Speed of Travel, Accessibility) • Information (Communication Materials, Complaint Handling, Communications) |
| ✓ Assurance | <ul style="list-style-type: none"> • Safety (Operational Safety, Personal Security) • Operator Attributes (Competence and Courtesy) • Customer Service Personnel (Competence and Courtesy) |
| ✓ Empathy | <ul style="list-style-type: none"> • Understanding of the Customer • Community Involvement / Social Responsibility |

The linking of these dimensions to service quality is illustrated in the figure below:



FIGURE 16
CUSTOMER ASSESSMENT OF SERVICE QUALITY



In determining which critical performance attributes to measure, two major guidelines should be used.

- 1) The performance attributes must be important to the customer. An attribute involving "state-of-the-art maintenance and bus storage facilities" may represent a major investment by a transit agency but be unimportant to the customer. Talking to customers is the only way to guarantee the selection of attributes that are important to the customer.
- 2) The performance attributes must be under the control and influence of the agency. Customer satisfaction research creates expectations – both internally in the organization and externally with customers – that change and/or improvements are forthcoming. Scarce resources and effort should not be spent on areas that cannot or will not be changed.

When determining the critical performance attributes that should be included as part of a customer satisfaction measurement tool, it is important to look at the issue from two perspectives – the internal or agency perspective and the external or customer perspective. A combination of qualitative and quantitative research techniques is used to identify critical performance attributes. Techniques used include in-depth interviews, Delphi techniques, focus groups, mail surveys, and telephone interviews.

Determining Critical Performance Attributes – The Internal Perspective

Company knowledge should be the first source of information about critical performance attributes. Employees know their work and their customers. Often, they are also customers. Interviews with agency management, drivers, customer service representatives, maintenance personnel, etc. are important both to obtain information and to encourage involvement in and acceptance of the research process. The benefits of this internal exploratory research are many and will help the agency to:

- Finalize the study objectives, design, and survey questionnaire,
- Communicate more effectively with end users of the research in reports and presentations,
- Make meaningful and actionable recommendations for quality improvement,
- Make recommendations that are consistent with the agency's position, direction, strategy, and culture, and
- Achieve organizational buy-in to the program.

This exploratory research is best achieved through one-on-one interviews or in small groups. If small groups are used, care should be taken to structure groups to encourage an open discussion among peers. For example, avoid mixing supervisory and line personnel or management and union employees. The focus of these discussions is to understand the operations, administrative, and service processes that potentially influence customer satisfaction. Specifically, the agency should answer the following key questions.

- What are the agency's major customer contact areas? The objective is to identify all points at which a customer interfaces with the transit agency that are likely to represent possible "satisfiers" and "dissatisfiers" and to define the general nature of each encounter. These contact points are often referred to as "moments of truth."
- What aspects of this contact involve direct customer interaction?
- Who participates in this process on the agency side? On the customer side?
- How effectively and efficiently is this process performed?
- What are the structural and strategic impediments to better performance?

Determining Critical Performance Attributes – The External Perspective

While company knowledge is the first source of knowledge about critical performance attributes, the next step should be to understand perceptions of organizational performance from the customers' perspective. To accomplish this goal, there is no substitute for talking directly with the customers. A variety of methodologies may be used at this point, including focus groups and/or telephone surveys.

The primary purpose of this research is to identify the "critical incidents" during the interaction between the customer and the transit agency that are the key determinants of the customer's perception of service quality and performance. "Critical incidents" are those aspects of agency performance that customers come in contact with directly. These incidents often define staff performance – helpfulness of drivers or courtesy of telephone personnel – and product quality – travel time and safe bus operation. A critical incident is a specific example of the experience of using the service or product that describes

either positive or negative performance. For example, a positive experience is a characteristic of the service or product that a customer would like to see every time he or she uses that service or product – the customer receives correct schedule and route information the first time he or she calls the agency. On the other hand, a negative experience is a characteristic of the service or product that would make the customer question the quality of the product – the bus arrives at the designated stop ahead of the posted time.

A good “critical incident” has two characteristics.

- First, it is **specific**. That is, it describes a single characteristic of the service or product – for example, personal safety while waiting for the bus. The critical incident is not specific if it describes several aspects of performance – for example, personal safety and security while waiting for and riding the bus.
- Second, a critical incident describes the service provider in **behavioral terms** or describes the service or product with **specific adjectives**. A critical incident such as “the driver was not able to help me” does not specify what the driver did and why the driver was unable to help. Instead the critical incident should state: (1) the driver was knowledgeable about routes and schedules and (2) the driver was courteous when answering my questions. The first critical incident describes a behavior of the driver and the second incident using a specific adjective to describe the service.

Two approaches are generally used for obtaining critical incidents: group interviews, and one-on-one or individual interviews. In either group or individual interviews, the method of generating critical incidents is the same. Several factors determine the success of this interviewing process.

- **Obtain ideas from people who have actually ridden the bus or train or who have had direct experience with the service for which quality is being measured** – ridesharing, telephone services, etc. Ideally, these people must be actual customers who have interacted with the service provider as they will be asked to provide specific examples of service or product quality.
- **Complete at least ten to twenty interviews**. If using group interviews, this typically translates into two focus groups. More interviews minimize the impact of insufficient information from any single respondent. If one conducts group interviews, critical incidents that are stated by one person might stimulate incidents from other group members. Because of this process, information obtained from the interviews is more likely to cover the spectrum of customer requirements completely.
- **Create a complete listing of critical incidents**. To accomplish this, the interviewer should ask each respondent to describe five to ten positive instances and five to ten negative instances of that product or service they received in the past. We can then translate these positive and negative instances into critical incidents that define good and poor service or product quality. Respondents should be encouraged to avoid using general terms.
- **Generate a list of approximately 200 critical incidents**. Many incidents will be similar to each other – “I was able to identify what time the bus arrived at the stop based on the schedule posted there” and “It was easy to figure out what time the bus would arrive at the stop where I was waiting.”
- **Group critical incidents to form “customer requirements.”** The key to categorizing these incidents is to focus on a specific adjective or verb they share. When one has reviewed and grouped all incidents, write a phrase that reflects the content of its incidents. This phrase

becomes the *customer requirement*. A good customer requirement contains a specific descriptive term for the service or product or a verb that describes an actual event involving the service or product.

- **Label these customer requirements with phrases or a single word describing the content of the critical incidents.** The following figure illustrates how this grouping and labeling process might occur.



EXHIBIT 13
DETERMINING CRITICAL PERFORMANCE ATTRIBUTES

| Critical Incident | Customer Requirements |
|--|---|
| <ul style="list-style-type: none"> • I waited for the bus and I didn't know if I had just missed it or if it was still coming. • It makes me late to work. • Time is very important to me and I plan my schedule to meet the bus at a certain time. | On-time performance |
| <ul style="list-style-type: none"> • The driver didn't wait until I sat down and I nearly fell into someone else's lap. • The driver scares me when he drives. • The driver pulls up to and away from stops very quickly. • The driver is very considerate and makes sure that older people on the bus have a place to sit down. | Safe bus operation |
| <ul style="list-style-type: none"> • I can't figure out what time the bus comes to my particular stop. • I don't know whether I can get to where I want to go from this bus stop. • I can easily tell if I can connect with other buses from the bus that stops at this stop. • I know how much to pay. • I know what time buses stop running in my neighborhood. | Usefulness of information at bus stops |

The allocation process – from critical incidents to customer requirements – is central to the development of a customer satisfaction measurement tool. Having two people or two groups of people involved in this process is often effective. While having each person or group follow the same process is possible, having each person or group work in different directions can be better. Here, the first person or group follows the process described above beginning with the critical incidents, grouping them into customer requirements, and labeling them. The other group then begins with the labeled customer requirements and allocates the critical incidents to each dimension. For those requirements where there are obvious differences between groups, both groups should discuss their process and come to a consensus as to the appropriate incidents that compose a particular category.

Once the preliminary set of customer requirements is defined, one should test them with a larger group of customers. Here, the focus is on testing the reliability and validity of the measures and to test the labeling of each customer requirement as to how effectively it expresses the intent of the dimension. We often need quantitative research at this point. Either telephone or a written survey distributed on the bus and returned by mail represents good methods. Several statistical techniques can be used to select the final set of attributes. Standard reliability tests (statistical methods that evaluate the internal consistency of items in an attitude scale*) are often used. In addition, factor analysis (a set of techniques for the study of interrelationships among variables) or regression analysis (a statistical technique that

* For a discussion of statistical methods for reliability, see J. Paul Peter, "Reliability: A Review of Psychometric Basis and Recent Marketing Practices," *Journal of Marketing Research*, 16, February 1979, pp. 6 - 17.

develops an equation that identifies the extent to which one or more independent variables, [e.g., customer requirements] are related to a dependent variable [e.g., overall satisfaction]) should be considered. These analyses are very useful in guiding the final selection of performance attributes. Management may also include specific attributes, no matter the statistical significance, to formulate strategic plans.

In summary, **determining critical performance attributes is potentially the most important step in the development of a customer satisfaction measurement process.** This process also represents an excellent opportunity to obtain agency buy-in to the research effort. Roadmap 9 summarizes the process for determining critical performance attributes.



ROADMAP 9 DETERMINING CRITICAL PERFORMANCE ATTRIBUTES

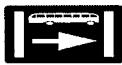
| | |
|---|--|
| ✓ Communicate the intent of the research | <ul style="list-style-type: none"> Publicize and discuss with employees the reasons for the customer satisfaction research. Discuss motivation for research with departments likely to use or who would be affected by research and solicit cooperation. |
| ✓ Perform internal research | <ul style="list-style-type: none"> Talk with the staff, and customer service personnel. Study letters of praise and letters of complaint. Become familiar with trends in indirect measures of customer satisfaction. Solicit information from all levels of the organization. Plan how the various levels of the organization will obtain and use the survey results. Use participation to obtain a commitment to the project methodology and results. |
| ✓ Perform qualitative research with customers | <ul style="list-style-type: none"> Define the agency's customers. Develop discussion guides for focus groups or in-depth interviews with customers. Conduct the research. Develop preliminary performance attributes using the vocabulary, wording, and terminology used by customers. |
| ✓ Perform quantitative research with customers | <ul style="list-style-type: none"> Formulate objectives using qualitative research information. Develop the survey instrument. Conduct the research. Develop the final set of critical attributes from the set of preliminary attributes established during the qualitative phase. |
| ✓ Review results with the organization | <ul style="list-style-type: none"> Review the results with management and employees. Modify and enhance the performance attributes. Finalize the list of performance attributes. |

Choosing the Right Method

We can divide customer research methodologies into two broad categories – qualitative and quantitative research. **Qualitative research** involves free-format responses to open-ended questions in which words and observations are used. Qualitative research is typically used as exploratory research. It provides in-depth information obtained from a few cases. The small number of cases cannot establish statistically reliable information for generalizations to a larger population. Two specific qualitative methodologies are in-depth interviews and focus groups.

Quantitative research is used to develop statistically reliable information from a sample that we can generalize to a larger population. A major objective of this type of research is to quantify the information generated from a qualitative research phase. It is used to establish the validity of preliminary conclusions drawn from exploratory research and to identify customer needs, wants, and expectations further. Quantitative research also is used to develop specific objectives, goals, and performance standards based on customer expectations. Finally, quantitative research is a key factor in developing and implementing satisfaction measures that are tracked and compared over time. Two quantitative methodologies that are often used in transit are telephone surveys and on-board surveys.

Choosing qualitative or quantitative research is not an either-or situation. The methodologies are complementary and should be combined to maximize their individual strengths. Qualitative research is often the first phase in designing customer satisfaction research, serving an important role in determining critical performance attributes. Qualitative research also can be used after a telephone or on-board survey to explain or provide additional insight into unanticipated results in the quantitative survey.



ROADMAP 10 CHOOSING THE RIGHT METHOD – QUALITATIVE VERSUS QUANTITATIVE RESEARCH METHODS

| | Qualitative | Quantitative |
|-----------------------------------|---|---|
| Type of Research | Exploratory / Conceptual | Descriptive / Factual |
| Types of Questions | Open-ended, interviewing process is interactive | Closed-ended, questioning is generally one-way |
| Number of Respondents | Few, nonrepresentative sample | Many, representative sample |
| Generalization of Results | Very limited | Reasonable |
| Data Obtained | Verbal, outcomes are subjective and open to interpretation | Numeric, outcomes precise and conclusive |
| Analysis | Subjective, results are an interpretation of verbal response / discussion | Statistical / objective, results are an interpretation of numerical patterns |
| Interviewer Qualifications | Special skills required | Less need for special skills |
| Cost | Higher per sample cost | Lower per sample cost |
| Flexibility | Easy to correct or adjust midstream | Costly to correct or adjust midstream |
| Time Required | Short turn-around, little lead time required | Longer turn-around, requires longer lead time as well as more time for analysis |

Qualitative Research Methods

Two methods of qualitative research are particularly applicable to conducting research on public transportation. **In-depth interviews** are face to face interviews conducted on a one-on-one basis or in very small groups. These interviews resemble conversations rather than formal, structured interviews. In-depth interviews are especially appropriate for capturing the ideas and viewpoints of key executives within an organization – the sponsoring company – or of major stakeholders in the research – firms from whom an agency contracts services or employees. The interviewers use a discussion outline designed before conducting the interviews. Questions are general and nondirective and are asked in a

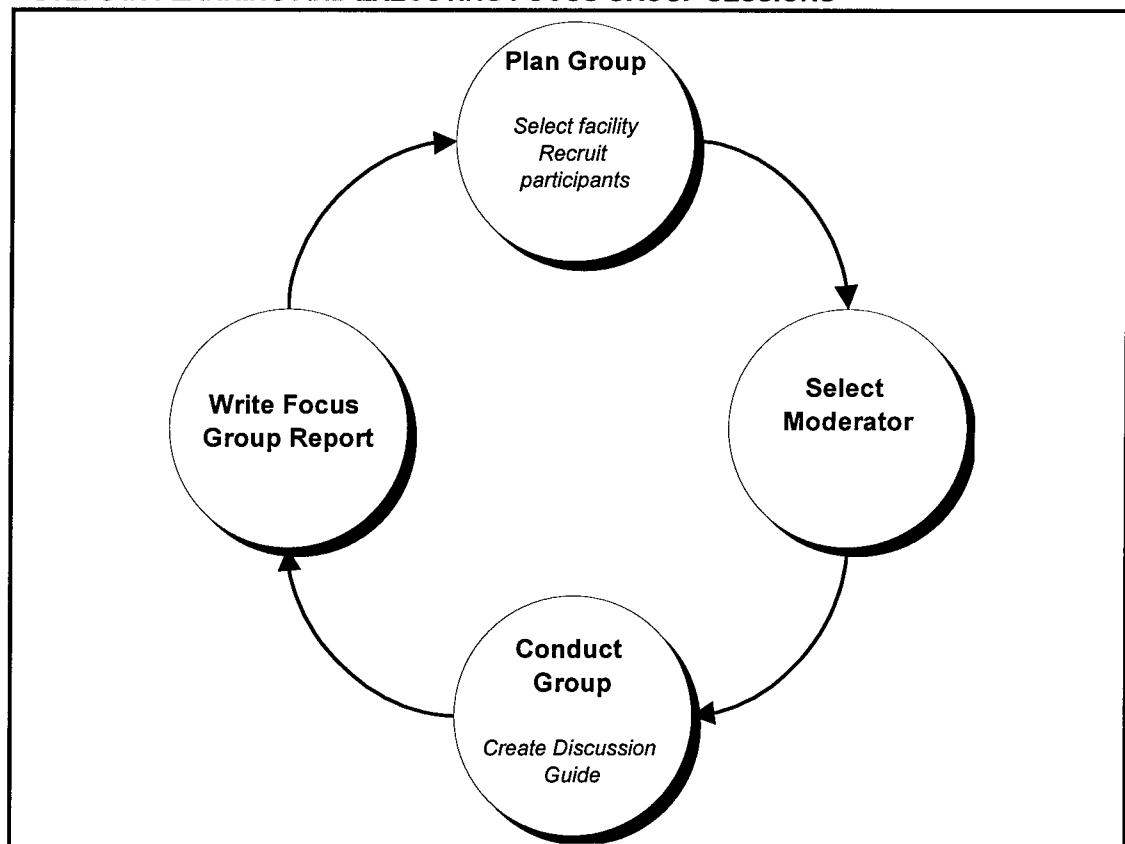
relaxed, casual manner. The interviewer must allow a free flow of ideas while still controlling the interview by providing the necessary order and structure. Time must be taken to explore and investigate important ideas. A good interviewer must be able to recognize and probe important ideas and concepts for additional information.

Focus group discussions are an alternative means of obtaining in-depth information. Focus groups typically are composed of eight to ten persons who share common characteristics. The groups meet for about two hours to offer opinions, viewpoints, and perceptions about a predetermined topic – for example customer requirements and expectations. Focus group sessions generate information not easily obtainable with other methods. Interactions among the group members often stimulate thinking in a manner not possible with other techniques.

Focus groups are not an easy technique to employ. A poorly conducted or analyzed focus group can yield very misleading results and waste a good deal of money. An average cost for a focus group including recruitment costs, payments to participants, facility rental, moderation, and report writing easily can be about \$3,000 to \$4,000 per group. Figure 17 illustrates the steps in planning and executing focus group sessions.



FIGURE 17
STEPS IN PLANNING AND EXECUTING FOCUS GROUP SESSIONS



Four components are important to the success of a focus group:

- 1) Planning the agenda,
- 2) Effective moderation,
- 3) Recruiting correct participants, and
- 4) Analysis and interpretation of the results.

The **agenda** of a focus group typically has four distinct stages:

- 1) Introduction,
- 2) Rapport / reconnaissance,
- 3) In-depth investigation, and
- 4) Closure.

The **introduction** stage typically lasts about ten minutes and usually includes a statement by the moderator of the “generic” purpose of the session – “We’re here today to talk about customer needs and expectations for transit service.” The moderator also gives the ground rules for participation and makes ethical disclosures about microphones, audio and/or video taping, and observers behind the one-way mirror. This stage of the focus group ends with self-introductions by respondents. Introductions typically contain basic information about key characteristics – mode choice, transit ridership, occupation, etc. – that will help in later analysis.

The second segment – typically lasting about twenty minutes – gained the title “**rapport and reconnaissance**” because the moderator asks easy questions that build trust and uses eye contact and other bonding exercises to provide the foundation for subsequent questions. Time is spent gaining an understanding of what group dynamics are in place and what dynamics must be encouraged or discouraged to create an atmosphere that is conducive to gathering the perceptions, opinions, beliefs, and attitudes of all respondents.

Most of the group time – sixty to seventy-five minutes – is spent on **in-depth investigation**. The moderator asks specific questions and uses constructive probing techniques to find out more about respondents’ perceptions, opinions, beliefs, and attitudes and to obtain reactions to specific stimuli – product / service concept statements, communication-boards, etc. During the investigation phase, there are many different ways to elicit more in-depth and insightful comments from respondents. Projective techniques are often used when respondents will not or cannot respond meaningfully to direct questions about the reasons for certain behaviors or attitudes or what the act of buying, owning, or using a product or service means to them. Participants in a group may be unaware of their own feelings and opinions, unwilling to make admissions that reflect badly on their self-image, or are too polite to be critical to a moderator. A well-trained and skilled moderator will be familiar with these methods and will know when to use them.

The final stage of a focus group is **closure**. Ideally, this time is used to conduct a summary and linking process on all that was learned in the group discussion and to obtain any last minute thoughts from participants. It normally takes about ten minutes.

The questions and possibly exercises used to guide the group are usually presented in a discussion outline. A sample guide is illustrated in Exhibit 14. This outline is strictly for general guidance and serves as a starting point for the sessions. It serves as a checklist to make certain the moderator covers all-

important topics. The set of topics covered or emphasized may change from group to group as the clients and moderator decide that a question is not generating useful, nonrepetitive information. Alternatively, a new, interesting idea may emerge, and reactions sought from subsequent groups.



EXHIBIT 14
SAMPLE FOCUS GROUP DISCUSSION GUIDE
TO DETERMINE CRITICAL PERFORMANCE ATTRIBUTES

| |
|---|
| <p>Introduction</p> <ul style="list-style-type: none"> • Purpose of Focus Groups • Guidelines for Discussion (e.g., no right or wrong answers, need to hear from everyone, speak one at a time, limit sidebar conversations, etc.) • Facility (one-way mirror, people watching, audio and/or video taping, disclose for ethical reasons) • Personal introductions (name, occupation, travel patterns, mode choice) |
| <p>Critical Performance Attributes</p> <ul style="list-style-type: none"> • Thinking about your most common trip, what aspects of the trip are most important to you? • What are some words that describe an ideal transit trip? • What are the important factors that you consider when evaluating whether transit is a viable option for a particular trip? • If you were talking to the head of [Agency], what would you tell him or her about [Agency's] product or service? |
| <p>Quality</p> <ul style="list-style-type: none"> • How do you define quality as it relates to public transportation? • What would you expect from a transit agency that provides superior quality? • Describe some problems you have experienced because the "quality" of transit service does not meet your needs for your typical trip? • Describe an instance(s) where you were very satisfied with [Agency]? • Describe an instance(s) where you were very dissatisfied with [Agency]? • What would you tell a friend or relative about [Agency]? |
| <p>Reliability</p> <ul style="list-style-type: none"> • How do you define reliability as it relates to public transportation? • What would you expect from a transit agency that provides superior reliability? • Describe some problems you have experienced because the "reliability" of transit service does not meet your needs for your typical trip? • Describe an instance(s) where you were very satisfied with the reliability of [Agency]? • Describe an instance(s) where you were very dissatisfied with the reliability of [Agency]? • What would you tell a friend or relative about [Agency's] reliability? |
| <p>Convenience</p> <ul style="list-style-type: none"> • How do you define convenience as it relates to public transportation? • What would you expect from a transit agency that provides superior convenience? • Describe some problems you have experienced because the "convenience" of transit service does not meet your needs for your typical trip? • Describe an instance(s) where you were very satisfied with the convenience of [Agency]? • Describe an instance(s) where you were very dissatisfied with the convenience of [Agency]? • What would you tell a friend or relative about [Agency's] convenience? |
| <p>Conclusion</p> <ul style="list-style-type: none"> • If you could make one recommendation to [Agency] that would improve service in an area that is critical to your continued use of public transportation, what would that recommendation be? |

An **effective moderator** encourages all participants to discuss their feelings, anxieties, and frustrations as well as the depth of their convictions on issues about the topic, without being biased or pressured by the situation. A trained moderator fully supports decision-makers with the most accurate and detailed in-depth view of how respondents really feel about products, services, issues, and advertising. No specific degree or background guarantees a good moderator. However, experienced and well-trained moderators often have degrees, course work, or work experience in a variety of fields – psychology, sociology, anthropology, research design, marketing, business management, survey research, or retailing – or a technical background related to client work. More important than a specific degree or work history is a good grounding in group dynamics and a respect for the opinions of others. In addition, a nonjudgmental attitude and a strong foundation in a rigorous research discipline are important for a skilled moderator. Above all, an effective moderator is a good listener – one who sees and hears the research from both the clients' and the respondents' point of view.



ROADMAP 11

KEY QUALIFICATIONS OF FOCUS GROUP MODERATORS

| | |
|--|--|
| ✓ Knowledge of market research tools and techniques | <ul style="list-style-type: none"> • Strong knowledge base about appropriate research designs for a variety of issue areas. • Understanding of and ability to apply appropriate research tools to achieve research objectives. |
| ✓ Knowledge base about the topic area | <ul style="list-style-type: none"> • Knowledge of the subject matter in sufficient depth to ask useful questions and follow-up probes. |
| ✓ Strong knowledge / experience base in group dynamics | <ul style="list-style-type: none"> • Understanding of how to work effectively with people in groups. • Knowledge of and ability to use more than one approach and/or solution for problems that emerge in group settings. |
| ✓ Knowledge of how to analyze and report qualitative data | <ul style="list-style-type: none"> • Ability to analyze, synthesize, and report key qualitative findings to support needs of decision-makers. • Understanding of the limitations of qualitative research data. |

When **recruiting participants** for a focus group, the goal is to provide for both similarity and contrast within a single group. As a rule, combining participants from different social classes or who have very different behaviors (e.g., riders and nonriders) in the same group is undesirable, because of differences in their perceptions, experiences, and verbal skills. Also, commonality among group members avoids interactions and conflicts among group members on side issues. Within an otherwise homogeneous group, however, providing for a spark to be occasionally struck by introducing contrasting opinions is helpful. One way to accomplish this is to include a mix of participants in each group who represent otherwise different characteristics. For example, in a group of riders, one might strive for a mix of frequent and less frequent riders. Also a mix of men and women, different ages, areas of residence, etc. also can accomplish this objective. Finally, participants should be carefully screened to meet certain criteria. Participants should have adequate experience with the issues being discussed to be able to provide an opinion. People who have already participated in many focus groups or who work in particular fields – transit, market research, and advertising – should not be included.

The number of participants in a group is dependent on many factors. Although groups of eight to twelve have become customary, smaller groups may be more productive. For example, consider a group of twelve participants. After subtracting the time it takes to warm up – usually about three minutes – and the time for the moderator's questions and probes, the average panelist in a 90-minute focus group has three minutes of actual talking time. The experience becomes more like a group survey than an exploration of experiences, feelings, and beliefs.

Hello, I'm _____ with [name of research firm], a public opinion research firm in [city]. Today / Tonight we are conducting a study on transportation issues in your area. Let me assure you that this is not a sales call. This study is being conducted for research purposes only. For this survey, I need to speak with someone in your household who is between the age of 25 and 64. Would that be you?

1. Which of the following best describes your employment status at this time?

2. Do you commute to the same work site at least 3 days a week?

3. How do you usually get to work or school?

4. Which of the following categories includes your age?

- ## 5. RECORD GENDER

6. Do you or does anyone in your household or immediate family work:

7. Have you ever participated in a discussion group for research purposes for which you were paid for your time?

8. When was the last time that you participated in one of these groups?

- As a further part of this research, we would like to invite you to participate in a discussion group for research purposes. The purpose of the group will be to discuss public transportation issues and service strategies. Let me assure you that absolutely no attempt will be made to sell you any type of product or service. This group is strictly for research purposes and we would like to hear your honest opinions. You will be with about ten people and will be involved in an informal exchange of ideas and opinions.

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Following the group discussion, the moderator **reviews, analyzes, and interprets the results**. The moderator not only reports specific comments and findings but also looks for consistent responses, new ideas, concerns suggested by facial expressions and body language, and other hypotheses that may or may not have received confirmation from all participants. Analysis of focus groups focuses on identifying consistent responses across several group sessions. When differences between group sessions occur, it is possible to develop hypotheses based on the differences in between-group composition – for example, frequent riders compared with infrequent riders. Because the number of participants is small, the researcher does not report frequencies and percentages. Instead, reports typically include expressions like “most participants thought” or “participants were divided on this issue.” A useful report of a group session is one that captures the range of impressions and observations on each topic and interprets them in the light of possible hypotheses for further testing. The researcher must put comments from respondents into a context so that implications are more evident. Meticulous documentation and interpretation of the session lay the groundwork for the final step – taking action.

A final question that often arises in planning for focus groups that is related to the analysis and interpretation of results is **how many groups to conduct**. The number of groups that an agency should conduct on a single subject depends on:

- 1) The nature of the issue,
- 2) The number of distinct market segments,
- 3) The number of new ideas generated by each successive group, and
- 4) Time and cost.

Because the focus of analysis is looking for consistency in responses across groups and because of the self-selection process inherent in the recruiting process, more than one group will always be needed. It is possible that even with the best recruiting and moderating, a group could be seriously flawed as to composition and results would be misleading. **As a rule, therefore, any project should begin with a minimum of two groups.** As the number of groups increases, there is a diminishing return in the value of the information that is obtained. The moderator invariably learns a great deal from the first discussion. The second group produces much more, but less is new. Usually, by the third or fourth session much of what is said has been heard before, and there is little to be gained from additional focus groups. Exceptions to this rule occur if there are distinct segments to cover – such as regional differences, ridership behavior, commuting, etc.

In summary, Roadmap 12 provides a simple comparison of the two primary qualitative research methods. Most of the limitations of qualitative research stem from the susceptibility of the results to misuse, rather than their inherent shortcomings. There is a great temptation among managers to accept qualitative research, based on small samples, as sufficient for making key management decisions, because they are so compelling in their reality. There are two inherent dangers in accepting the results of qualitative research.

- The results are not necessarily representative of what would be found in the population and should never be projected to a larger population.
- Second, there is typically a great deal of ambiguity in the results. The flexibility that is the hallmark of the method also gives the moderator great latitude in directing questions. Similarly, while writing the report, a moderator with a particular point of view may interpret the thoughts and comments selectively to support that view.

In view of these pitfalls, if this is the only research being conducted, results from qualitative research should be used with extreme care. **Ideally, these results should be used strictly for insights into the reality of the consumer's perspective and to suggest hypotheses for further research.**



ROADMAP 12

CHOOSING THE RIGHT METHOD – IN-DEPTH PERSONAL INTERVIEWS AND FOCUS GROUPS

| | In-Depth Personal Interviews | Focus Groups |
|-------------------------------|--|---|
| Group Interactions | <ul style="list-style-type: none"> No group interaction. Stimulation for new ideas comes from interviewer. | <ul style="list-style-type: none"> Group interaction is present. May stimulate new thoughts from respondents. |
| Group / Peer Pressure | <ul style="list-style-type: none"> Thinking of respondents may not be challenged. Respondent may be more likely to provide unbiased or unpopular opinions. Role playing is minimized and no peer pressure. | <ul style="list-style-type: none"> Group dynamics and stimulation may clarify and challenge thinking. Peer pressure and role playing may occur and results may be confusing or difficult to interpret. |
| Respondent Competition | <ul style="list-style-type: none"> Individual is alone with interviewer and can express thoughts in noncompetitive environment. Time to obtain detailed information. | <ul style="list-style-type: none"> Respondents compete with one another for time to talk. There is less time to obtain in-depth details from each participant. |
| Influence | <ul style="list-style-type: none"> No potential for influence from other respondents. | <ul style="list-style-type: none"> Responses may be "contaminated" by opinions of other group members. |
| Subject Sensitivity | <ul style="list-style-type: none"> Respondents may be more likely to talk. | <ul style="list-style-type: none"> Respondents may be hesitant to talk freely or may bow to group opinions. Or, respondents may be willing to "admit" to an attitude or behavior if another in the group brings up the subject. |
| Interviewer Fatigue | <ul style="list-style-type: none"> Interviewer fatigue / boredom a problem when many interviews are needed. Multiple interviewers may be needed, resulting in problems with consistency with probing and analysis. | <ul style="list-style-type: none"> One interviewer can easily conduct several group sessions on one topic without becoming fatigued or bored. Only one interviewer is used, resulting in consistent probing and analysis. |
| Amount of Information | <ul style="list-style-type: none"> Large amount of information can be obtained, but more time is required. Costs are high. | <ul style="list-style-type: none"> Relatively large amount of information can be obtained in a short period of time with relatively small cost. |
| Stimuli | <ul style="list-style-type: none"> Large amount of stimulus material can be used. | <ul style="list-style-type: none"> Volume of stimulus material is somewhat limited. |
| Interviewer Schedule | <ul style="list-style-type: none"> Individual interviews are easier to schedule. More time is required to complete the same number of interviews. | <ul style="list-style-type: none"> May be more difficult to assemble eight or ten respondents at one time if they are difficult to recruit. |

Quantitative Research Methods

Telephone interviews and on-board surveys are the chief methods of collecting data for customer satisfaction research in the transit industry. On-board surveys can be completed entirely while a passenger is on the bus, train, or while waiting at a station or stop. Alternatively, an agency can distribute the surveys on the bus or train, at a station or stop and request that respondents return the surveys by mail, or at central locations at stops or stations. There are many factors – time restrictions, cost, confidentiality, and the like – that determine which quantitative research method or methods should be used. Each of these two methods has its advantages and its disadvantages, all of which must be evaluated to decide which method to use. In addition, using a combination of methods may be the best decision. Roadmap 13 illustrates some key differences between methods.



ROADMAP 13

CHOOSING THE RIGHT METHOD – TELEPHONE AND ON-BOARD SURVEYS

| | Telephone Interviews | On-Board Surveys / Personal Interviews | On-Board Surveys / with Mailback |
|--|----------------------|--|----------------------------------|
| Data Collection Costs | Moderate to high | High | Low to moderate |
| Time for Data Collection | Short to moderate | Moderate to long | Moderate |
| Control over Respondent Selection | High | High | Low |
| Response Rate | Moderate to high | High | Low to moderate |
| Ability to Access Hidden Populations | Moderate | High | Low |
| Complexity of Questions | Simple to moderate | Moderate to complex | Simple |
| Completion of Boring / Tedious Questions | Moderate | High | Low |
| Completion of Sensitive Questions | Moderate to high | Low | Moderate |
| Interviewer Bias & Error | Low to moderate | Moderate to high | None |
| Ability to Ask Open-ended Questions | Low to moderate | High | Moderate |
| Perceived Respondent Anonymity | Moderate to high | Low | Moderate to high |

One of the primary differences in the different approaches is the direct cost of a completed interview. Exhibit 16 provides some approximate indices of the direct cost of a completed interview, to help compare data collection methods. In 1995, an index of 1.0 corresponded to a cost of \$25.00, including costs of compensation for interviewing and/or data entry personnel, training, supervision expenses, and direct costs such as telephone charges.



EXHIBIT 16 COMPARATIVE INDICES OF DIRECT COSTS PER COMPLETED INTERVIEW

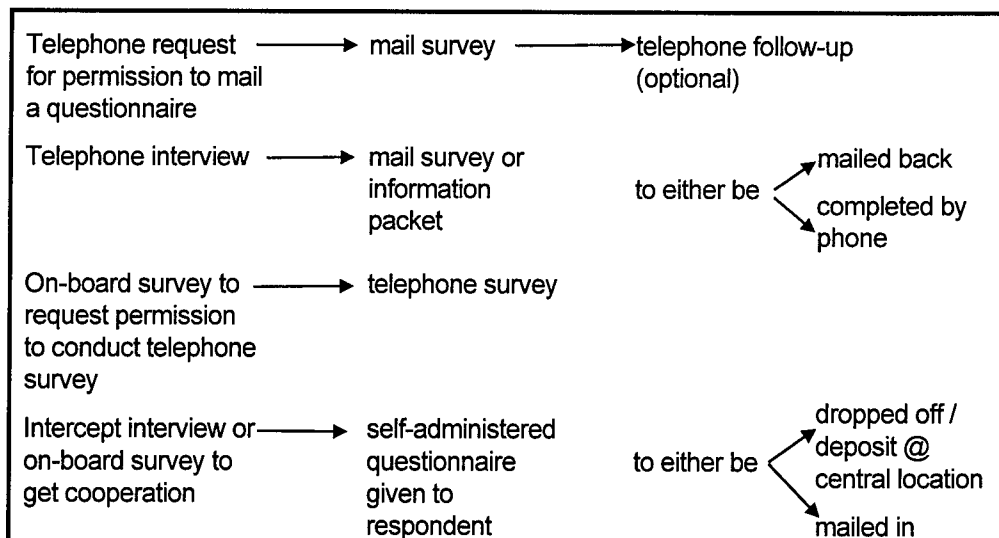
| Data Collection Method | Index of Cost |
|--|------------------------|
| <ul style="list-style-type: none"> Mail Survey (costs depend on return rate, incentives, and follow-up procedures) | 0.3 - 0.8 |
| <ul style="list-style-type: none"> Telephone Interviews <ul style="list-style-type: none"> 7-minute interview with head of household in metropolitan area 15-minute interview with small segment (e.g., riders) of area population | 0.5 - 0.8 1.5 - 2.0 |
| <ul style="list-style-type: none"> On-Board Surveys <ul style="list-style-type: none"> On-board distribution with mailback or drop off at central location (costs depend on return rate, incentives, and follow-up procedure) 5 to 10 minute personal interview on bus or other transit location (e.g., stop, train station, or park-and-ride lot) | 0.3 - 0.6 0.4 - 0.8 |
| <i>In 1995, an index value of 1.0 corresponded to a cost of \$25.00. Costs do not include costs for research design data analysis, report writing, etc.</i> | |

Combining Survey Methods

Since each of the basic methods of data collection has different strengths and weaknesses, it is becoming common to combine them and retain the best features of each while minimizing the limitations. Some of the feasible combinations (or sequences) are illustrated in Exhibit 17.



EXHIBIT 17 COMBINATIONS OF SURVEY METHODS



Using telephone-interviewing methods with corresponding random sampling techniques removes much of the potential error inherent in on-board sampling methods. In some cases, it is difficult to complete the entire interview by telephone, as in where bilingual interviews are needed or where respondents need visual materials in order to respond to the questionnaire. Here, telephone interviews are used to obtain cooperation and the survey and other materials are then mailed to the respondent.

The key is the telephone presentation, which must not only gain an agreement to participate but make sure the prospective respondent is serious about cooperating. In one study in which 300 households were contacted, 88 percent agreed to complete the mail survey and 60 percent returned usable questionnaires. If the return rate is not acceptable or if analysis shows that there is a systematic bias in those who respond compared with those who originally agreed to participate a follow-up phone call should be made.

In addition, if surveys become very long or require respondents to complete some task, such as a travel diary, it may be necessary to conduct the survey in phases. For example, begin with a telephone contact and then use some other method to collect the remaining data. Seattle Metro used this method many times. Households are initially contacted and asked to complete a survey. Usually, travel characteristics, demographic data, attitudes toward issues, etc. are gathered in the first survey which can take between ten and twenty minutes to complete. Those who agree to continue are mailed a packet with information that is more complete or a description of different services being considered. In one case, these descriptions involved a conjoint or trade-off procedure useful for examining alternative service options. Respondents are recontacted by telephone to collect the data. In one such study for Metro, 812 respondents completed the initial telephone surveys. From this group 575 respondents – or 71 percent – agreed to complete the second phase. These respondents were sent a packet describing different services. A total of 437 interviews were completed. In total, those respondents who completed both phases of the research spent an average of forty minutes being interviewed. Obviously, by breaking the task up Metro secured higher cooperation rates. Moreover, respondents had the opportunity to study the service descriptions and were able to provide more knowledgeable responses to the follow-up questions. Demographic characteristics were compared between respondents who completed the first and second phase of the research. No significant differences were found between the two groups of respondents.

Transit agencies – notably those with a relatively low incidence of riders in the general population – often find themselves relying on on-board surveys to reduce the cost of conducting market research. Extreme care must be used when conducting on-board surveys to avoid problems of sampling error that can be introduced when identifying routes and trips to be included in the sample as well as the other bias that can be introduced. This bias is significant in those cases where surveys or cards are simply put out on buses or trains to be completed entirely at the riders' discretion.

Problems with sampling error can be handled using simple random sampling procedures, or to be more efficient, cluster sampling procedures. Other bias is introduced primarily in two ways. First, "interviewers" may not follow strict sampling procedures when distributing surveys, as in failing to give surveys to individuals they may feel uncomfortable approaching. On the other hand, an "interviewer" may miss the route or trip to which they were assigned and simply take another bus to make up the missed trip. Second, nonresponse bias is introduced when those handed the surveys fail to respond. Since in many instances no data is obtained from those who decline to do the survey, it is difficult to identify the extent of non-response bias as well as whether the bias is in any way systematic.

Trends in Survey Research

Computers are being used increasingly to control the administration of questionnaires. Today, many research companies have computerized the central location interviewing process – called CATI (computer-assisted telephone interviewing). Each interviewer uses a personal computer or workstation. Questions and response categories appear on the screen one at a time. The interviewer reads the questions, enters the response, and the computer skips to the next appropriate question. For example, a question might ask whether a person who presently does not ride the bus has ridden in the past year. If the answer is "yes," that person may answer one series of questions. Those that answer "no" skip to

other appropriate questions. In addition, the computer can be used to customize the questionnaire. For example, consider the situation of an individual who works and attends school. The issue in gathering travel behavior data is whether to gather data for the work or school commute. Early in the questionnaire we might establish whether the respondent primarily commutes to work or school and then the remaining questions about commute travel are customized to apply to what they do most often – travel to work or school. No longer is there any confusion whether the responses to a particular question apply to the work or school commute. While questions such as these can be handled in a traditional pen and paper interview, the computer handles them much more efficiently.

There are several other advantages to CATI. This approach eliminates the need for separate editing and data entry steps. Consequently, the time that is required to complete the research is less. In addition, computer tabulations can be run at any point in the study. Based on an initial tabulation, some changes in research design – adding or dropping questions – can be considered. Finally, management may find the early reporting of survey results helpful in preliminary planning and strategy development.

Another use of computers is CASAQ (computer-assisted self-administration questionnaires). In this type of interview, the respondent interacts directly with the computer. The respondent is asked to sit before the computer and to answer questions as they appear on the screen. This type of interview is being widely used in malls and has some applicability in transit – for example at transit centers, rail stations, or even on-board vehicles. Computer interactive interviewing has resulted in better responses from respondents and in some cases, 30 to 40 percent cost savings. Many hardware and software developments – for example, pen computers – continue to make this form of interviewing more feasible.

Finally, the future will see a greater use of the Internet to conduct surveys. At this time, use of the Internet is limited. At its most basic level, marketing research on the Internet offers faster, cheaper ways of collecting data, and, in many cases, will provide a highly targeted list of respondents. On the other hand, marketing research on the Internet brings with it a host of unique limitations, some of which are only just beginning to be understood.

Summary: The Right Method

In summary, there are many options to consider when choosing the right method to collect information. Qualitative research – in the form of in-depth interviews or focus groups – often is used to examine attitudes, feelings, and motivations. The use of qualitative research continues to grow in popularity for several reasons. First, qualitative research is usually cheaper than quantitative studies. Second, it is an excellent means to understand the in-depth motivation and feelings of customers. Third, it can improve the efficiency of quantitative research. Qualitative research, however, is not without its disadvantages. One problem is that qualitative research sometimes will not distinguish small differences in attitudes or opinions as well as large-scale quantitative studies. In addition, the respondents in qualitative studies are not necessarily representative of the population of interest to the research, severely restricting any ability to project the results of the research.

Quantitative research – in the form of surveys – continues to be the mainstay of market and customer research, notably customer satisfaction measurement. The ability to project results to a larger population as well as being able to establish and measure against a benchmark lend a richness to the data not obtainable through qualitative research.

The ultimate selection of a method or methods requires careful consideration of the nature of the decisions that will be made based on the research, the information required, and the types of analysis that will be done.

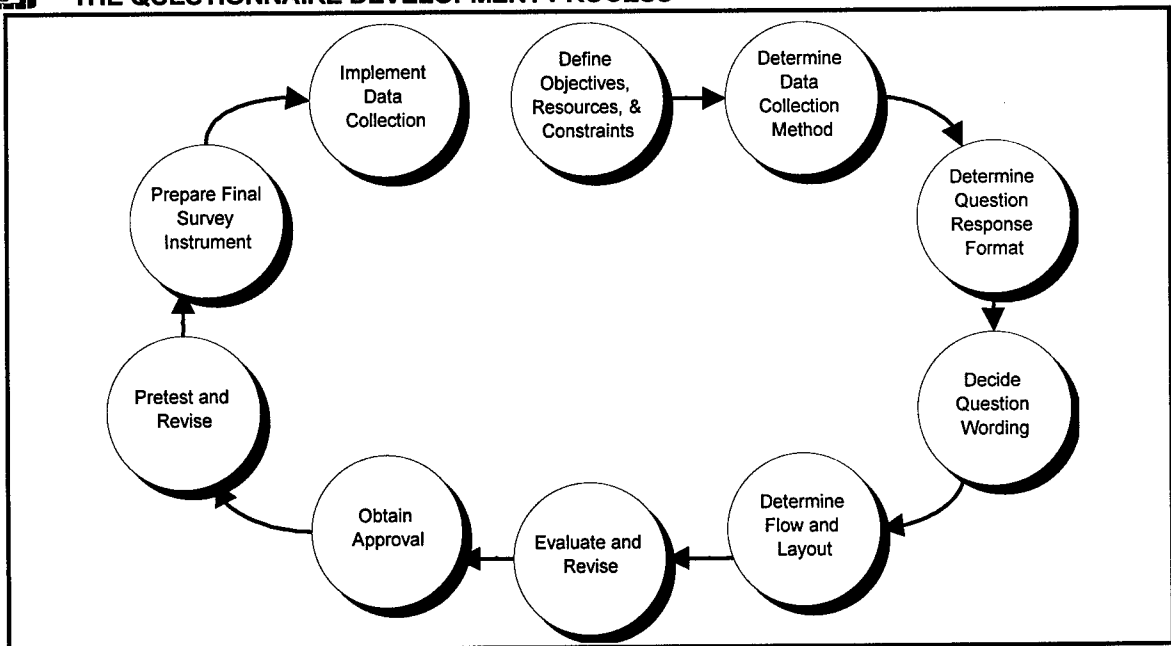
Designing the Questionnaire

Questionnaire design is a critical phase of the customer satisfaction research process. Recently, there has been considerable discussion in the literature as to the best way to measure customer expectations and performance evaluations. Designing a questionnaire involves a logical series of steps as shown in Figure 18. The steps may vary slightly from researcher to researcher and from project to project, but all tend to follow the same general sequence. Committees and lines of authority can complicate the questionnaire design process. It is often wise to clear each step of the design process with the individual who has ultimate project authority. This is particularly true for step one – determining the decision-making information needed. All too often many man-hours are wasted on questionnaire design when a researcher develops a questionnaire to answer one type of question and the “real” decision-maker wanted something else entirely.

It should also be noted that the design process itself - such as question wording and format – can raise additional issues or unanswered questions. Successful questionnaire development requires ongoing and open communication between the researcher and the user of the research.



FIGURE 18
THE QUESTIONNAIRE DEVELOPMENT PROCESS



Guidelines for Good Questions

The structure of questions has a direct impact on the usability of the answers. This topic is so important, there is a whole body of literature devoted to nothing else. Some excellent reference books on questionnaire design are included in the bibliography.

Survey items have two separate parts: the question and the answer. A good question not only asks for information clearly, but also elicits useful responses. Following are some general rules and guidelines to writing good questions.

- **Remember the survey's purpose.** This is key to a well-designed questionnaire. All other rules and guidelines are based on this. A test is to look at each question and ask why the question is being included. If the reason is not directly linked to the overall purpose of the research, do not ask the question.
- **Keep questions simple.** Using compound sentences and big words where simple ones will do forces respondents to remember too much information. These types of questions are likely to produce unpredictable results. One common rule of thumb is to keep the number of words in any question under twenty. If necessary, break the question down into several different parts. Using skip or branching patterns enables the interviewer to ask follow-up questions based on responses to previous questions. Use words that all respondents can understand no matter their education level, but do not sound patronizing. The most common pitfall is to use technical jargon or specialized terms. Take special care to avoid words that have different meanings for different groups. This becomes a very important issue when designing bilingual studies.
- **Keep questions focused.** Avoid words or phrases that have vague or ambiguous meanings. If a respondent can misinterpret a question, they will. A common error is not giving the respondent an adequate frame of reference, in time or space, for interpreting the question. Words such as "often," "occasionally," and "usually" lack an appropriate time reference, so respondents choose their own. Some words have many interpretations. Thus, one respondent might interpret travel time to work by bus as meaning only the time actually spent on the bus. Another might include the time walking to and waiting at the stop, the time on the bus, and the time it takes at the other end to walk to their ultimate destination. Be clear and concise. Avoid imprecise language and double negatives.
- **Avoid double-barreled questions.** These are questions in which a respondent can agree with one part of the question but not the other. Or the respondent cannot answer the question at all without accepting a particular assumption. An analyst cannot interpret answers to these questions. For example, consider this question: "Are you satisfied or dissatisfied with personal safety while riding or waiting for the bus?" If a respondent says they are dissatisfied, one does not know if they are dissatisfied with personal safety while riding the bus, while waiting for the bus, or both.
- **Avoid leading or loaded questions.** A leading question is one that clearly suggests or reveals the researcher's (or an interviewer's) opinion. For example, consider this question – "Studies have shown that congestion has become a major problem in our area. Do you agree that HOV bypass lanes are an effective solution to this problem?" While this obviously is a leading question, other examples are subtler. One way to load a question is through failure to provide a full range of alternatives. For example: "If you do not have a car available to drive to work one day, would you ride the bus or what?" On the other hand, questions can be loaded by providing a reason for an alternative. For example: "Should taxes be increased to improve public transportation and provide more service, or should we keep them about the same?" Finally, using emotionally charged words – "environment," "taxes," "tolls" – that have strong positive or negative connotations overshadow the specific content of questions.

Getting Usable Responses

While writing good questions is important, it is equally important to pay attention to obtaining usable responses. Again, there are some general rules and guidelines to follow.

- **Make response options mutually exclusive and exhaustive.** This is the most important rule to follow when providing response options. If response options are not mutually exclusive, the respondent will have more than one legitimate place for their answer. For example: “When did you stop riding the bus? Less than one year ago? One to two years ago? Two to three years ago? Three to five years ago? Five or more years ago?” One must also ensure that the response options cover every possibility. If a complete list of options cannot be provided, include an “other” choice. If the list of choices is too long, an open-ended question might be a better option.
- **Keep open-ended questions to a minimum.** While a valuable tool, they should not be overused. Not only can they result in respondent fatigue, but they pose problems as to coding and analysis. Also, they add considerable and potentially unnecessary cost to the research. Use results from qualitative research or other studies to help generate possible response categories for open-ended questions under consideration.
- **Provide a frame of reference or other appropriate definitions for responses.** For example, a carpool is two or more passengers; a vanpool is seven or more passengers in an employer-provided vehicle. Questions that deal with time or frequency of use – using response categories such as “always,” “sometimes,” and “never” – are particularly troublesome. A simple definition – “By regularly, I mean at least three times a week” – will solve this problem.
- **Consider how to handle “don’t know” responses.** Allowing people to say they simply do not have an opinion about a topic is useful. However, there are legitimate concerns that people will opt for that choice particularly during long surveys as respondent fatigue increases. Examine each question to decide if a “don’t know” response is wise. For example, if the agency needs information only from those with an informed opinion or higher interest, offer a “don’t know” option. Researchers should pay particular attention to handling “don’t know” responses with scale questions. Interviewer probing should be used to learn whether a “don’t know” response means the respondent has “no opinion” – the midpoint on the scale – or does not have enough information or knowledge to provide an accurate opinion – a true “don’t know” response. Finally, occasionally, distinguishing between a “don’t know” response and a refusal to answer the question may be important. For example, a question looking at how often a respondent is likely to use a new service may elicit a genuine “don’t know” response or a respondent simply may not want to commit one way or other – a refusal to respond.



ROADMAP 14 DESIGNING THE QUESTIONNAIRE

| | |
|---|---|
| ✓ Focus very precisely. | • Every item should zero in very directly on one, specific issue or topic. |
| ✓ Keep each item brief. | • The longer the question, the greater the response task and the more error and bias. |
| ✓ Strive for clarity. | • Every respondent must know exactly what's being asked. |
| ✓ Use "core" vocabulary. | • Use the same words as the least sophisticated respondents would use in common speech. |
| ✓ Use simple sentences. | • Two or more simple sentences are preferable to one compound sentence. |
| ✓ Avoid specific sources of bias or error. | • Be sure items are free from the factors that create bias and error, including social desirability, prestige, threat, order, extremity, etc. |
| ✓ Use structured questions. | • Unstructured items ordinarily provide large quantities of poor quality data. |
| ✓ Classify answers carefully. | • Unstructured items ordinarily provide large quantities of poor quality data. |
| ✓ Choose appropriate categories. | • Be certain they're neither too broad nor too narrow, too many nor too few. |

Using Attitude Scales

Finally, when developing survey questionnaires, particular attention should be directed to the use of attitude scales. Again, some simple guidelines are presented.

- **Provide a meaningful scale by anchoring end-points with meaningful labels.** For example: "Please rate your overall satisfaction with customer service at [agency name]. Use a scale where '1' means 'very dissatisfied' and '5' means 'very dissatisfied.'" Alternatively, one could give a label to each point on the scale – "very satisfied," "somewhat satisfied," "neither satisfied nor dissatisfied," "somewhat dissatisfied," or "very dissatisfied."
- **Select the length of scale – three, five, seven, or ten – that captures the greatest amount of variance in the data but is not so long that only certain parts of the scale are used.** When the measurement of extreme opinions is critical, use a scale with more points. On the other hand, generally little is gained by having a scale with more than seven points. Typically, larger scales are collapsed when it comes time to analyze the data.
- **Include a midpoint.** While there are some instances where a midpoint is not desirable, as with don't know responses it is often a good idea to give respondents with moderate or neutral opinions a way out of a forced and inaccurate response.
- **Pretest scales.** Always conduct a pretest of attitude scales paying particular attention to how well you have met the above guidelines.



ROADMAP 15 CREATING EFFECTIVE SCALES

| | |
|---------------------------------------|---|
| ✓ Keep it simple. | <ul style="list-style-type: none">Given a choice between a very short, concise scale and a more sophisticated one, use the less complex one. |
| ✓ Respect the respondent. | <ul style="list-style-type: none">Use scales that will make it as quick and easy as possible for respondents. This will reduce nonresponse bias and improve accuracy. |
| ✓ Choose the range. | <ul style="list-style-type: none">Categories and scale increments should be about the same breadth used by respondents. Normally, respondents classify things into a range from about 2 to about 7 or 8 categories, and seldom more than 10.Do not expect respondents to be more precise than they are able. |
| ✓ Group only when required. | <ul style="list-style-type: none">Never put things into categories when they can easily be expressed in numeric terms.Data can be grouped during processing, but if obtained in broad categories, it can't be desegregated later. |
| ✓ Handle neutrality carefully. | <ul style="list-style-type: none">If respondents genuinely have no preference, they'll resent the forced choice inherent in a scale with an even number of alternatives.If feelings are especially strong, an odd number of scale points may result in fence-riding or piling on the midpoint, even when some preference exists. |
| ✓ State instructions clearly. | <ul style="list-style-type: none">Use language that's typical of the respondents. Explain exactly what the respondent should do and the task sequence they should follow.List the criteria by which they should judge. Use an example or practice item if necessary. |
| ✓ Pilot test scales. | <ul style="list-style-type: none">Conduct a pretest to test instructions, format, vocabulary, etc.Conduct analysis – using reliability and/or other statistical methods – to examine the reliability and validity of the scale items and to determine the appropriate number of scale points. |

A Special Case: Scales for Customer Satisfaction Measurement

The previous rules and guidelines are appropriate when developing any survey instrument. Specific to the issue of customer satisfaction research is the response scale customers would use to express their views about the performance of a product or service. The choice of a rating scale not only affects the reliability and validity of the findings, but also influences how results are used and how easy the survey is to answer and administer. Too often, agencies "borrow" or make up a scale without regard to its effectiveness as a measurement tool, resulting in biased or misleading results. What then are the characteristics of a "good" scale? A good rating scale has the following characteristics: minimal response bias, easily understood and interpreted by the respondent, discriminating power, easy to administer, and credible and useful as a management tool. Exhibit 18 illustrates some commonly used rating scales in customer satisfaction measurement.



EXHIBIT 18 COMMONLY USED RATING SCALES^{xlviii}

| Satisfaction Scale | | | |
|---------------------------|---------------------------|---------------------------|---------------------------|
| 2 – Satisfaction | 4 – Satisfaction | 5 – Satisfaction | 5n – Satisfaction |
| 1 = Dissatisfied | 1 = Very Dissatisfied | 1 = Very Dissatisfied | 1 = Very Dissatisfied |
| 2 = Satisfied | 2 = Somewhat Dissatisfied | 2 = Somewhat Dissatisfied | 2 = Somewhat Dissatisfied |
| | 3 = Satisfied | 3 = Somewhat Satisfied | 3 = Neither |
| | 4 = Very Satisfied | 4 = Satisfied | 4 = Satisfied |
| | | 5 = Very Satisfied | 5 = Very Satisfied |
| Performance Scale | | | |
| 4 – Excellence | 5 – Excellence | 5 – Expectations | 4 – Requirements |
| 1 = Poor | 1 = Terrible / Very Poor | 1 = Much worse | 1 = Missed |
| 2 = Fair | 2 = Poor | 2 = Worse than expected | 2 = Nearly met |
| 3 = Good | 3 = Just OK | 3 = Just as expected | 3 = Met |
| 4 = Excellent | 4 = Good | 4 = Better than expected | 4 = Exceeded |
| | 5 = Excellent | 5 = Much better | |
| Non-Anchored Scale | | | |
| | Grade | Number | |
| | A | 0 | |
| | B | 1 | |
| | C | . | |
| | D | . | |
| | E | 9 | |
| | F | 10 | |

There is no perfect scale, and considerable controversy has erupted recently over what scale to use.* Several scales illustrated in the Exhibit 18 fail on several characteristics.

- The “2 – satisfaction” scale fails in terms of response bias and discriminating power. However, combining a strong scale for overall assessment and reserving this scale for a check-off list for identifying detailed problem areas can be an effective compromise when trying to control questionnaire length.
- The “4 – satisfaction” and “4 – excellence” scales both fail because of positive response bias and weak discriminating power.
- The “5 – satisfaction” or “5n – satisfaction” scales address the problems of positive response bias, but fare less well than excellence, expectations, and requirements scales in discriminating high-end performance.
- The “5n – satisfaction” is more difficult to explain in a telephone survey.
- The “5 – excellence” scales do well on all criteria. However, there are some problems with a tendency for the response distribution to be more skewed to the positive end of the scale when

* See “Customer Satisfaction Measurement, Scales: A Weighty Debate,” *Marketing Research* (Fall, 1994) for a discussion of different scaling options in customer satisfaction research.

compared with other scales. Analysts favor this scale when respondents are not likely to have clearly defined expectations before product / service experience.

- The “grade” and “number” scales suffer from inconsistency of interpretation. Moreover the “number” scale has too many categories and does not work well in telephone surveys.
- The “5 – expectations” and “4 – requirements” scales are strong on all criteria. Many companies prefer them as they link the notions of “expectations” and “performance” together. Both scales work well with self-administered and telephone surveys. However, care must be taken in using these scales where “exceeded” could be misinterpreted or not clearly associated with customer needs. Moreover, in telephone surveys, experience has shown that interviewers must repeat this scale more often than other scales.

In conclusion, the choice of an appropriate rating scale to measure product or service quality is an important step in developing an effective customer satisfaction measurement tool. The researcher should pay careful attention to the pros and cons of each scale under consideration. The purpose of the research, the types of analyses that are being considered, and the usefulness of the results for management must be considered. Above all, when selecting a scale, its reliability and validity are critical. Agencies should undertake adequate pretesting of the survey, including some psychometric testing of the measures after the pretest.

Conducting the Research

Once the customers have been identified, the critical performance attributes have been determined, and the basic design of the questionnaire has been established, several more decisions must be made before the research can be conducted. These include what sampling procedures should be used and what quality control procedures should be instituted.

Sampling

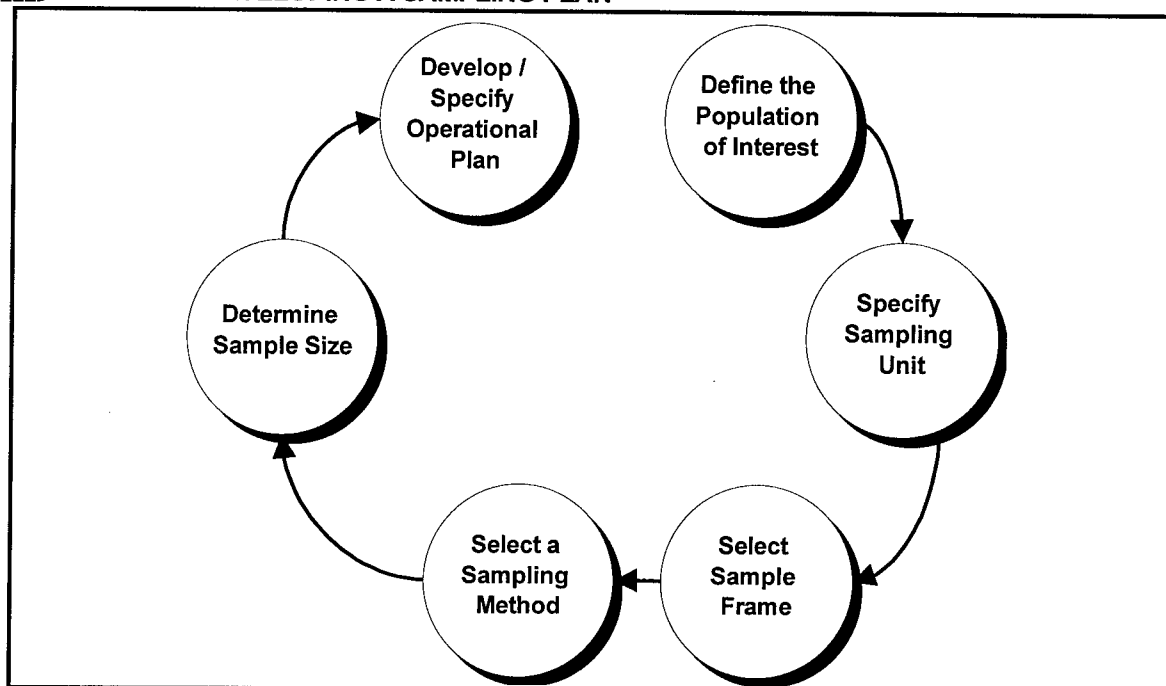
Nearly every survey research project uses some form of sampling. The main reason for sampling is economy. To survey every individual in a population is ordinarily much too expensive in terms of time, money, and personnel. Moreover, there is no need to survey every individual. By sampling a small fraction of the entire population, one can obtain estimates that represent the population as a whole with enough accuracy to base decisions on the results with a reasonable level of confidence.

While sampling is extremely practical and economical, it has to be done correctly, or it will introduce bias and error in the results. The sample must be selected properly, or it will not represent the population of interest. It has to be large enough to meet the requirements for reliability – but not so large that you are wasting resources.

Many think that the sampling decision is simply a matter of how many people to interview. Rather, many decisions need to be made. The various steps involved in the sampling process are shown in Figure 19.



FIGURE 19
STEPS IN DEVELOPING A SAMPLING PLAN



Identifying the Population of Interest

The specification of the sampling design actually begins with the identification of the *population* to be surveyed. Roadmap16 illustrates the four main tasks involved in identifying the population of interest.



ROADMAP 16 **SAMPLING – IDENTIFYING THE POPULATION OF INTEREST**

- ✓ Be sure the population consists of those people who actually possess the information sought by the survey. Use your knowledge of the market to assist in this definition.
- ✓ Identify all the major factors that would otherwise qualify respondents and make their responses meaningful to the sponsor. Specify clearly who or what is excluded.
- ✓ List the criteria for inclusion and exclusion of respondents, together with the decision rules to be used. Rely on the research objectives to help define these decision rules.
- ✓ Be careful not to overdefine the population and/or that the population definition is not so restrictive that it may not be reproducible at a later point in time.

This looks like a simple task, but it seldom is. For example, transit agencies often define the population of interest as all persons living in their service area. How then does one define service area? Rarely is an agency's service area neatly defined by zip codes. Sometimes, a zip code may be only partially included. Another situation that frequently arises is where the agency serves a particular area but with extremely limited service – one route. If you survey the entire area, you are likely to reach many people who simply do not possess the information sought in the survey. The questions then are how does one exclude those individuals living in that zip code that are not part of the service area? Or, how do we target those individuals who live close enough to the route in question that they are likely to have enough information to respond?

Exhibit 19 identifies some common bases for defining the population of interest.



EXHIBIT 19 SOME COMMON BASES FOR DEFINING THE POPULATION OF INTEREST

| BASIS | DISCUSSION |
|-----------------------|--|
| ✓ Geography | What geographic area is to be sampled? Usually a question of the agency's scope of operation. It could be a city, county, metropolitan area. It can be defined by zip code, census tract, or other major, easily identified boundaries. |
| ✓ Demographics | Given the objectives of the research, whose opinions, reactions, etc. are relevant? Are we interested in getting information from all persons, persons between certain ages (e.g., 18 and over), or other key target groups (e.g., commuters)? |
| ✓ Use | Also based on the research objectives, the population of interest frequently is defined in terms of some product or service use requirement. This is usually stated in terms of some use vs. nonuse of some quantity over a period of time (e.g., ridden the bus at least once in the past thirty days). |
| ✓ Awareness | To identify persons with adequate information to respond to the questions, the agency may want to identify some screening based on awareness of agency services overall or of specific services (e.g., fixed route vs. express). |

Specifying the Sample Unit

Once the researcher has defined the population, the next step is to identify the actual sample unit to be interviewed. A **sample unit** is the smallest entity that will provide one response. Ordinarily, sample units consist of individual people. So each person in the population or one person from each household included in the population might be a sample unit. However, this is not always the case. For some surveys, the appropriate sample unit might be a household, consisting of all those living in one housing unit. This is frequently the case when travel diaries are used to gather mode choice data. Increasingly, transit has recognized the importance of employers as a target audience. Here, the sample unit may be an individual business or company.

Again, this seems a simple decision. However, consider a typical transit survey where the researcher defines the population of interest as persons living in a specified service area who have ridden the bus two or more times in the past thirty days. Here, the smallest single unit is an individual who meets these specifications. The questions then are should we interview every person in a single household that meets these specifications? Or, do we restrict our interviewing to one person per household? If the latter is chosen, what procedure do we use to select the person in the household to interview? Roadmap 17 provides some parameters for specifying the sample units.



ROADMAP 17

SAMPLING – SPECIFYING THE SAMPLE UNITS

- ✓ Specify the sample unit so that it is the smallest single entity from which the data can be obtained.
- ✓ If the unit contains several individuals who might provide different data, the specification of the unit is too broad and should be narrowed.
- ✓ If responses from individuals would be redundant or overrepresent some entities, the specification is too narrow and should be broadened.
- ✓ If the survey data are to be compared with existing survey or secondary data, the same sample units must be used for the current survey or the data will not be comparable.

Identifying the Sampling Frame

The third step in the process is to identify the **sampling frame**. The sampling frame is a list of the population elements or members, from which sample units are selected for sampling. In the ideal world, there is a complete and accurate list. Unfortunately, such a list does not usually exist. For example, an agency may define the population of interest for a particular study as commuters between the ages of twenty-five and fifty-four who have considered transit or another alternative mode for travel to work in the past year. There probably is no single list that provides a complete enumeration of these individuals. Sometimes, there may be several lists – persons who contacted the agency for ridesharing information, employees receiving employer-subsidized bus passes, persons who participated in a transportation fair at different work sites who requested information. While these lists combined could be used as the sampling frame, they should be carefully examined to detect what, if any, types of bias are being introduced to the study.

Often, using a larger sampling frame is simply more effective. For example, you might develop a listing of all households in the area of interest and through screening questions, determine if the person qualifies as a respondent. In a telephone interview, the sampling frame is a listing of all households with telephones. A telephone book or reverse directory may serve as a starting point for developing this sampling frame. However, the telephone book does not include those households that have unlisted or unpublished numbers.

There is substantial evidence that those with listed and unlisted numbers are significantly different in regard to several important characteristics. Research has shown that voluntarily unlisted subscribers are more likely to be renters, live in the central city, have recently moved, have larger families, have younger children, and have lower incomes than their counterparts with listed numbers. There are also significant differences between the two groups as to purchase, ownership, and usage patterns of certain products and services. If the population of interest is transit riders, this sampling frame may not include many transit-dependent riders. Unlisted numbers are more prevalent in the West, in metropolitan areas, and among nonwhites and those in the eighteen to thirty-four-year-old age group. Here, a procedure must be used to generate a list of elements of the population to be sampled. **Random digit dialing (RDD)** involves generating lists of telephone numbers at random. Many procedures exist for developing RDD samples. Also, an agency can purchase such samples from sampling companies that follow rigid procedures for developing samples and work continually to update samples, keeping track of the many changes made by local telephone companies as they add and delete prefixes and suffixes.

Selecting a Sampling Method

The fourth step in the process involves the selection of a **sampling method**. The selection of a particular sampling method depends on the objectives of the study, the financial resources available, time limitations, and the nature of the problem under investigation. The major alternative sampling methods can be grouped under two categories:

- 1) Probability and
- 2) Nonprobability sampling methods.

Probability samples are samples selected so that every element of the population has a known, nonzero probability of selection. The simple random sample, in which every element of the population has a known, and equal probability of selection, is the best known and most widely used method. With probability sampling, the researcher must closely follow precise selection procedures that avoid arbitrary or biased selection of elements. When these procedures are strictly followed, it is possible to calculate the extent to which a sample value differs from a population value, so the researcher can project results to the population.

Nonprobability samples are samples where the selection of elements from the population is made in a nonrandom manner. This occurs when population elements are selected based on convenience – because they are easy or inexpensive to reach. While one can develop probability sampling methods for collecting data on-board buses, unless strict procedures are used, most on-board surveys represent nonprobability samples.



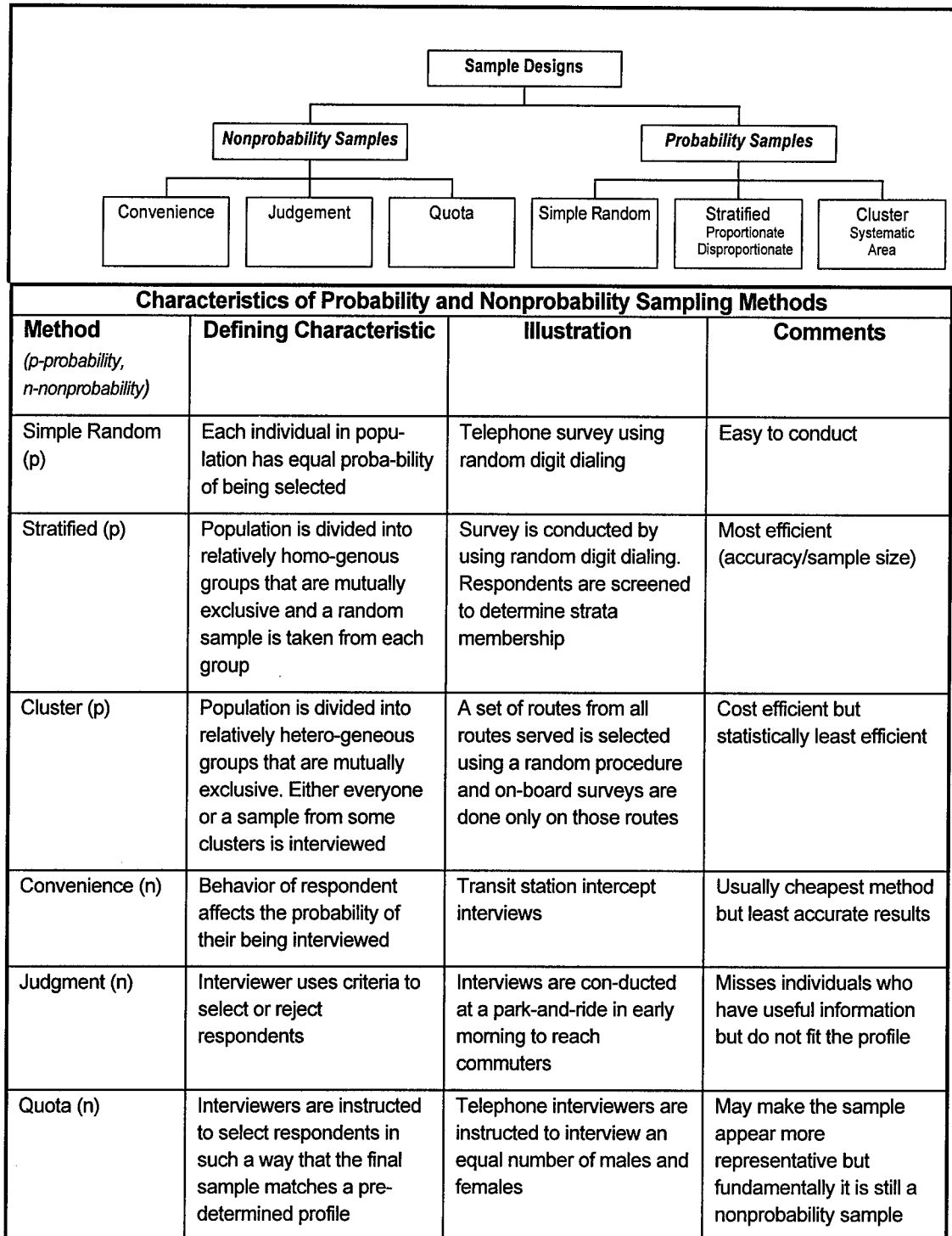
ROADMAP 18
SAMPLING – SELECTING THE RIGHT SAMPLING METHOD

| | Advantages | Disadvantages |
|-------------------------------|---|--|
| Probability Samples | <ul style="list-style-type: none">• Sampling error can be computed• Survey results are projectable to the total population | <ul style="list-style-type: none">• More expensive than nonprobability samples of the same size• Take more time to design and execute• Simple random samples may not be representative of the population |
| Nonprobability Samples | <ul style="list-style-type: none">• Cost less than probability samples• Take less time to execute• Can be designed to achieve representative samples• May be the only possible means of obtaining data | <ul style="list-style-type: none">• Sampling error cannot be computed• Results cannot be projected to the total population |

Several alternative methods fall under each category. Exhibit 20 illustrates the different types of samples and their different characteristics.



EXHIBIT 20 CLASSIFICATION OF SAMPLING METHODS



Determining the Sample Size

Once the sampling method has been selected, the next step is to decide the appropriate **sample size**. Many considerations come into play when determining sample size. Compromises are always being made based on the availability of resources – time, money, and personnel. Moreover, there is no one “right” way to decide what is the best or most appropriate sample size. An evaluation of the factors contained in Roadmap 19 provides some insight into whether a study needs a large or small sample. Once these factors are considered, the researcher can determine the actual sample size.



ROADMAP 19

SAMPLING – FACTORS DETERMINING SAMPLE SIZE

| <i>Factors Indicating a Large Sample</i> | <i>Factors Indicating a Small Sample</i> |
|--|--|
| ✓ The decisions to be based on the survey have very serious or costly consequences. | ✓ There are few, if any, major decisions or commitments to be based on the survey data. |
| ✓ The sponsors demand a very high level of confidence in the data and estimates. | ✓ The sponsors require only rough estimates concerning the parameters of the population. |
| ✓ There is a high level of variance among the units in the population being sampled. | ✓ The population to be sampled is homogeneous, with little variance among units. |
| ✓ The sample is to be divided into relatively small subsamples during analysis and interpretation. | ✓ Analysis and interpretation will be based on the entire sample, or only a few, large subsamples. |
| ✓ Project costs and timing vary only slightly with increases in the size of the sample. | ✓ A large proportion of the total project costs are for data collection or costs increase dramatically with sample size. |
| ✓ Time and resources are readily available to cover the costs of data collection. | ✓ Budget constraints and/or time requirements limit the volume of data that can be collected. |

The following method for determining sample size is a conservative approach and works well for the types of research typically conducted by transit agencies. It assumes a simple random sample, a large sample approximation, and that typical sources of nonsampling error (non-response, poor administration methods, highly biased results, etc.) are trivial.

The most common approach to determining sample size is to use an equation that finds the appropriate number of cases to survey for a categorical variable – “yes” - “no” type responses.

$$\frac{Z^2(P_y)(P_n)}{C^2} = n$$

In this equation, the sample size (n) is determined by:

- Z – the number associated with the desired level of confidence;
- P_y and P_n – the proportion of respondents responding “yes” or “no” to a particular question, and
- C – the number associated with the desired precision of the estimates.

To set the sample size, the researcher needs to assign values to Z, P_y and P_n , and C, and then solve for n – the sample size.

P_y and P_n represent the proportion of people responding to each category in a dichotomous question (a dichotomous variable is one that has only two response categories such as “yes” and “no” or “commuter” and “noncommuter”). All variables can be converted to a dichotomous variable for this purpose. For example, if the primary purpose of the study is to identify the proportion of people in the population who ride the bus two or more times a month, a question that asks “how often did you ride the bus in the past thirty days” that has a continuous, numeric response can be considered dichotomous – a person rode less than twice or they rode two or more times.

Unless the agency has conducted research in the past, the researcher needs to estimate the probable values of P_y and P_n for the critical questions in the study. The easiest way to arrive at a number that would work for more than one question is to be as conservative as possible – 50 percent of the respondents give one answer and 50 percent give the alternative response. Thus, the computation of $(P_y)(P_n)$ becomes simple – $(.5)(.5)$, or .25. The equation now reads:

$$\frac{(Z^2)(.25)}{C^2} = n$$

The next thing the researcher needs to do is to decide the level of accuracy that is needed in the results and the degree of confidence one wants in the results. Most often, researchers specify a confidence interval of 95 percent. That is, they want to be able to say that nineteen out of twenty times the value of the proportion in the *population* is within a specific, numeric range from the corresponding value of the proportion computed from a sample. Similarly, an accuracy of $\pm 5\%$ is the most common level of accuracy.

The agency should look at the nature of the decision that it is making in specifying the levels of accuracy and confidence, however. The greater the risk and the more costly a mistake will be, the greater the degree of confidence one wants in the results. In extreme cases (e.g., asking the state legislature to fund a rail system), confidence levels as high as 99 percent and accuracy levels as narrow as ± 1 percent might be justified. On the other hand, for low risk decisions (e.g., shifting a schedule ahead by 15 minutes), the agency may require less confidence in the results – a 90 percent confidence level with an error of ± 10 percent.

Decisions regarding accuracy and confidence levels directly affect the sample size. By way of example, assume that the agency would like to say that their results are accurate within a range of plus or minus 5 percent and that the agency wants a confidence level of 95 percent. The Z score is found in a table of the normal distribution. However, for a desired level of confidence of 95 percent, $Z = 1.96$. For a confidence level of 99 percent, the coefficient to use is 2.576; for 90 percent the coefficient is 1.67. The equation now reads:

$$\frac{(1.96^2)(.25)}{.05^2} = n$$

Solving for n yields a sample size of 384.

Larger sample sizes yield more precision. However, there are diminishing returns as sample size increases. For example, if one interviews only 100 persons, the error is plus or minus 9.8%. Increasing the sample size to 400 reduces the error to plus or minus 4.9%, but this represents a quadrupling of the sample to get a 50% reduction in the error. Increasing the sample size to 2,400 results in an error of plus or minus 2.0%. Exhibit 21 illustrates the random sample sizes required to achieve desired levels of confidence and margins of error.



EXHIBIT 21
RANDOM SAMPLE SIZES REQUIRED TO ACHIEVE DESIRED LEVELS OF CONFIDENCE
AND MARGINS OF ERROR

| Margin of error | Level of Confidence | | |
|---------------------|---------------------|-------|--------|
| | 90% | 95% | 99% |
| + 1 percent | 6,766 | 9,604 | 16,590 |
| + 2 percent | 1,692 | 2,401 | 4,148 |
| + 3 percent | 752 | 1,068 | 1,844 |
| + 4 percent | 423 | 601 | 1,037 |
| + 5 percent | 271 | 381 | 664 |
| + 10 percent | 68 | 97 | 166 |

The relationship between margins of error, confidence levels and sample size shown in Exhibit 21 suggests that agencies will usually opt for moderate size samples, 400-600 interviews, as this provides for reasonable error levels (± 5 percent) with reasonable confidence (95 percent). This does not mean that one never has to use a larger sample.

In any sample size determination problem, the researcher must give serious consideration also to the number and anticipated size of various subgroups of the total sample about which one wants to make statistical inferences. For example, if the purpose of the study is to make statistical inferences only at the aggregate level – all riders in the service area – a sample size of approximately 400 is quite adequate. However, if riders living in different parts of the service area – those living in the primary service area where considerable existing service is available compared with those living in a secondary service area where there is little existing service available or new service is being added – then sample size may need to be increased to achieve reliable estimates at the subgroup level. If the agency requires the same degree of accuracy at the subgroup level, the same size would double.

Other things equal, the larger the number of subgroups to be analyzed, the larger the total sample size required. One common rule of thumb suggests that the sample should be large enough so that there is a minimum of 100 respondents in each major subgroup. Moreover, one should strive for a minimum of thirty to fifty respondents in each of the less important subgroups.

Quality Control

Despite the best-laid research design and sampling methods, other errors often occur in the collection of customer research information. These errors are called “nonsampling” errors. Nonsampling errors can occur because of errors in conception, logic, misinterpretation of replies, statistics, tabulation, coding, or in the reporting and interpretation of the results. They are so pervasive they caused one writer to lament:

The roster of possible troubles seems only to grow with increasing knowledge. By participating in the work of a specific field, one can, in a few years, work up considerable methodological expertise, much of which has not been and is not likely to be written down. **To attempt to discuss every way a study can go wrong would be a hopeless venture.**^{xlix} (Emphasis added)

Not only are nonsampling errors pervasive, they are not as well-behaved as sampling error. Sampling error decreases with increases in sample size. Nonsampling errors do not necessarily decrease with increases in sample size; they may, in fact increase. Nonsampling errors also distort the reliability of sample estimates. Nonsampling errors can be reduced. But their reduction depends on improving methods and instituting strict quality control procedures. Roadmap 20 summarizes some of the most common types of nonsampling errors and some methods by which they can be reduced or controlled.



ROADMAP 20

NONSAMPLING ERRORS AND SOME METHODS FOR HANDLING THEM

| Type | Definition | Methods for Handling |
|----------------------|--|---|
| Noncoverage | Failure to include some units or entire sections of the defined survey population in the sampling frame. | <ul style="list-style-type: none"> • Improve sampling frame using other sources. • Select sample in a way to reduce incidence, such as by ignoring ineligible on a list. • Adjust the results by appropriately weighting the subsample results. |
| Nonresponse | Failure to obtain information from some elements of the population selected for the sample. | <ul style="list-style-type: none"> • Usually caused by not reaching those individuals not at home when attempt is made or because respondent refuses to complete study. Use strategies to address these issues specifically. |
| Not-at-homes: | Designated respondent is not home when the interviewer calls. | <ul style="list-style-type: none"> • Have interviewers make appointments. • Call back on another day and at a different time of day. • Attempt to contact the designated respondent using another approach (e.g., a modified callback). |
| Refusals: | Respondent refuses to cooperate in the survey. | <ul style="list-style-type: none"> • Convince the respondent of the value of the research and importance of cooperation. • Provide advance notice that survey is coming. • Guarantee anonymity. • Provide an incentive for participating. • Hide the identification of the sponsor by using an independent research organization. • Get a “foot in the door” by having respondent comply with some small task before getting to the survey. • Use personalized cover letters. • Use follow-up contact at convenient time. • Avoid interesting but not vital questions. • Adjust the results to account for nonresponse. |



ROADMAP 20

NONSAMPLING ERRORS AND SOME METHODS FOR HANDLING THEM

| Type | Definition | Methods for Handling |
|-----------------|--|---|
| Response | Failure to obtain valid responses to a question or series of questions. | <ul style="list-style-type: none"> • Randomize question and/or response order. • Crosscheck questions. • Check with known data. • Have interviewer evaluate respondent. |
| Field | Although the individual participates in the study, he or she refuses to answer specific questions or provides incorrect answers to them. Also, errors that arise due to interviewer error and/or bias. | <ul style="list-style-type: none"> • Match characteristics of interviewer and respondent as closely as possible. • Make sure interviewer instructions are clear and written down. • Conduct practice interview training sessions. • Examine the interviewers' understanding of the study's purposes and procedures. • Have interviewers complete questionnaire and examine replies to see if there is any relationship between respondents' answers and interviewer's own answers. • Verify and/or monitor a sample of each interviewer's interviews. |
| Office | Errors that arise when coding, tabulating, or analyzing the data. | <ul style="list-style-type: none"> • Use field edit to detect the most glaring omissions and inaccuracies in the data. • Use second edit in office to decide how to handle questionnaires containing incomplete answers, obviously wrong answers, and answers that reflect lack of interest. • Use closed questions to simplify coding, but when open-ended questions are needed, specify the appropriate codes that will be allowed before collecting the data. • When open-ended questions are being coded and multiple coders are used, divide the task by questions, not by data collection forms. • Have a coder code a sample of other's work to ensure consistent set of coding criteria. • Follow established conventions; for example, use numeric codes, not letters of the alphabet, when coding the data for computer analysis. • Prepare code book that lists codes for each variable and categories included in each code. • Use appropriate methods to analyze the data. |

Analyzing Results

Appropriate analysis of research results is critical to understanding the customers' perspectives and to developing strategies for improvement. A variety of techniques should be used to capture and analyze the important information generated from the research.

Data analysis requires the use of a set of statistical tools that reduce the amount of detail in the data, summarizing it, and making the most important facts and relationships apparent. Analyzing the results of a customer research project requires the development of an analysis plan. An analysis plan sets forth the nature and sequence of the analysis to be done. Two things dictate what statistical tools are applied or would work best:

- 1) The nature of the data – the “material” to which the tool is applied – and
- 2) The nature of the report – the “product” that is to be created.

That is, the analyst has to know what tool would work best for a particular type of data and/or report. Using the same statistical tool for every survey item is almost never appropriate.

Simple Frequencies

When developing the sequence of the analysis, it helps to think about how the results of the data tell a story. First, it is important to understand the characteristics of the major characters in the story. The use of simple frequency tables – tables reporting the number of observations and proportion of observations in each category – provide a useful description of the variables in the data. Frequency tables also are useful to:

- 1) Determine the degree of item nonresponse,
- 2) Locate mistakes,
- 3) Identify outliers,
- 4) Determine the empirical distribution of the variable in question, and
- 5) Calculate summary statistics.

Exhibit 22 illustrates a frequency table for the overall rating of the quality of public transportation services. The question reads,

“Overall, would you say the quality of public transportation service [Agency] provides is ‘excellent,’ ‘very good,’ ‘good,’ ‘fair,’ or ‘poor’?”

Both the distribution of the responses and the most commonly used summary statistics are included.



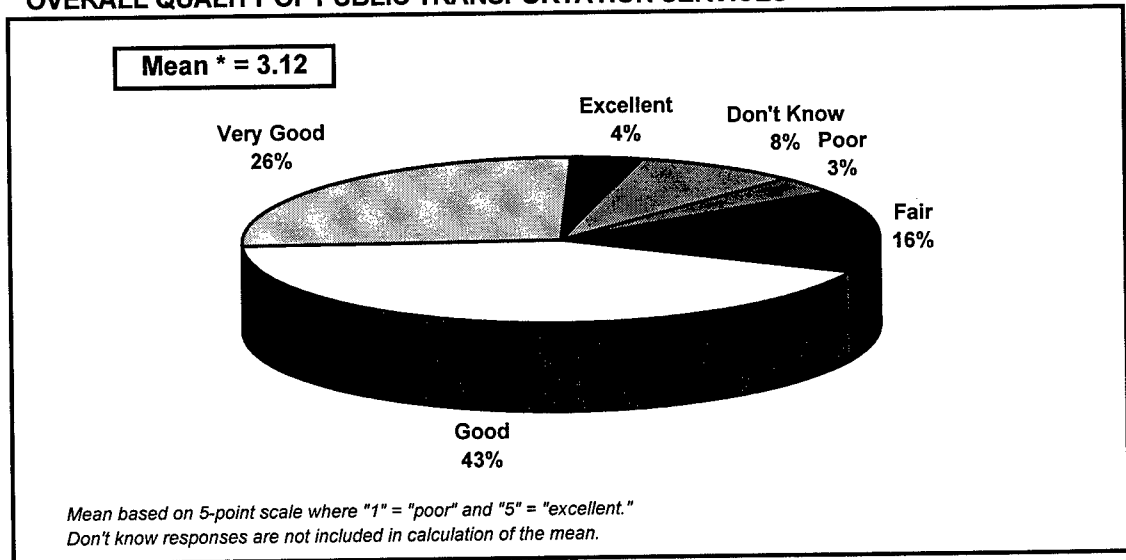
EXHIBIT 22
SAMPLE FREQUENCY TABLE – OVERALL QUALITY OF PUBLIC
TRANSPORTATION SERVICES

| Value | Value Label | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------|-------------|---------------|---------|---------------|--------------------|
| 1 | Poor | 36 | 3.2 | 3.5 | 3.5 |
| 2 | Fair | 182 | 16.3 | 17.7 | 21.2 |
| 3 | Good | 475 | 42.4 | 46.3 | 67.5 |
| 4 | Very Good | 292 | 26.1 | 28.4 | 95.9 |
| 5 | Excellent | 42 | 3.8 | 4.1 | 100.0 |
| 9 | Don't Know | 92 | 8.2 | Missing | |
| | Total | 1,119 | 100.0 | 100.0 | |
| Mode | 3.000 | Median | 3.000 | Mean | 3.119 |
| Std err | .027 | Std dev | .867 | | |
| Valid cases | 1,027 | Missing cases | 92 | | |

Usability of this information is greatly enhanced through a simple graphical presentation.



FIGURE 20
OVERALL QUALITY OF PUBLIC TRANSPORTATION SERVICES



Cross-tabulations

The next step is to examine whether there are differences in attitudes, opinions, and behaviors of key characters or market segments. Cross-tabulation is by far the most common method to examine the associations between survey variables. It is probably used more frequently than all other methods combined. Often, analysis of survey data goes no farther than the simple reporting of frequencies and cross-tabulations. Cross-tabulation data are so common and popular in part because the method is effective, it can easily be understood and interpreted, and it can be tabulated very readily by simple spreadsheet, charting, and analysis programs. It is also very flexible and robust – that is, it will readily accept any data that can be put into a few categories. While it may lack the power and sensitivity of other measures of association between variables, cross-tabulation makes up for it by its very simplicity.

Cross-tabulation tables, or “cross-tabs,” show the relationship between two categorical variables. For example, one variable could be the overall service quality rating illustrated above and the second variable could be whether the respondent is a current or former rider. Exhibit 23 shows the resulting cross-tabulation table. The table shows that there is an association between the overall rating for service quality and whether the individual is a current or former rider. This is determined by observing the distribution of responses in the various cells. For example, it is evident that the proportion of current riders who rate the agency as either Poor (2.3%), Fair (16.2%), Good (42.6%), Very Good (34.1%) and Excellent (4.9%) differ from the proportions for the Former Riders, Poor (4.3%), Fair (18.7%), Good (48.6%), Very Good (24.8%) and Excellent (3.6%). Although there is little or no difference between the proportion of current and former riders giving the agency “excellent” or “poor” ratings, current riders give the agency a higher proportion of “very good” ratings than former riders. Former riders, on the other hand, give the agency a higher proportion of “good” ratings.

The chi-square statistic is used to determine whether this pattern of results could reasonably be expected to occur because of sampling errors (i.e., by chance) or whether it represents a true difference of opinion. In this case, the chi-square value is high enough that the sampling explanation is implausible (likely to occur less than 1% of the time when there is no true difference in the opinions of the current and former riders). Consequently, the appropriate conclusion is that current riders rate the transportation services differently than former riders.

Note: One cannot properly conclude that one group is more or less favorable than the other based on the chi-square statistic alone. Furthermore, one cannot state how much more or less favorable one group is than the other. Additional analyses are necessary before making these conclusions.



EXHIBIT 23

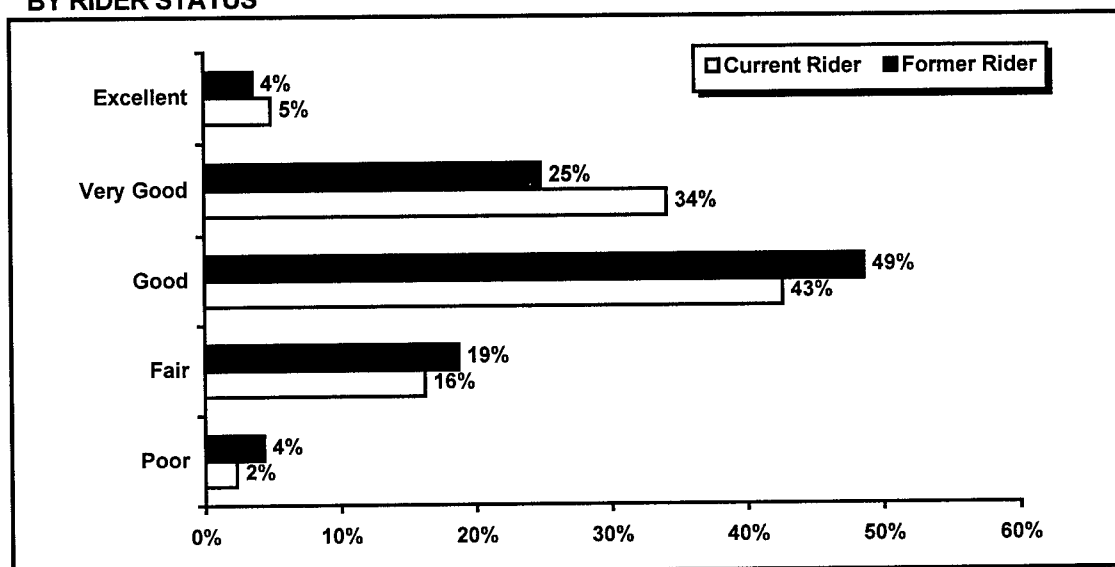
SAMPLE CROSS-TABULATION TABLE – OVERALL QUALITY OF PUBLIC TRANSPORTATION SERVICES BY RIDER STATUS

| Count Col. Pct. | | | | |
|--------------------|---|---------------|--------------|----------------|
| | | Current Rider | Former Rider | Row Total |
| Poor | 1 | 9 | 27 | 36 |
| | | 2.3 | 4.3 | 3.5 |
| Fair | 2 | 63 | 118 | 181 |
| | | 16.2 | 18.7 | 17.7 |
| Good | 3 | 166 | 307 | 473 |
| | | 42.6 | 48.6 | 46.3 |
| Very Good | 4 | 133 | 157 | 290 |
| | | 34.1 | 24.8 | 28.4 |
| Excellent | 5 | 19 | 23 | 42 |
| | | 4.9 | 3.6 | 4.1 |
| Column | | 390 | 632 | 1,022 |
| Total | | 38.2 | 61.8 | 100.0 |
| Chi-Square = 13.60 | | d.f. = 4 | | Prob. = .00881 |

Again, this data can be depicted graphically and may give the user a clearer picture of the association between the two variables. Here, it is apparent that the statistically significant differences between the two groups may be attributed to the more favorable view of the current riders compared to the former riders.



FIGURE 21
OVERALL QUALITY OF PUBLIC TRANSPORTATION SERVICES
BY RIDER STATUS



While cross-tabulation tables are relatively simple to use and understand, there are several considerations when setting up a cross-tabulation table. The main requirements for using cross-tabulation tables are summarized in Roadmap 21.



ROADMAP 21
FOR USING CROSS-TABULATIONS

| | |
|---|--|
| ✓ The objective is to determine if the distributions of one variable differ for each category of the other. | ✓ If a distinction is made between an independent and dependent variable, it generally is easiest to interpret if you place the dependent variable on the rows and use the column percent. |
| ✓ The variables to be cross-tabulated must both be derived from nominal or ordinal scales or have few enough values to be treated as categories. | ✓ The chi-square statistic and its probability are used to measure the statistical significance of the relationship. |
| ✓ One variable may be identified as an independent and the other dependent, but they need not be. | ✓ The minimum expected cell frequency must be computed to be sure it is five or greater for the chi-square statistic to be valid. |
| ✓ Either column or row percentages are most useful for interpretation, but table percentages are usually more difficult to interpret and rarely are used. | ✓ If the minimum expected cell frequency is less than five, either rows, columns, or both should be combined to increase the minimum expected cell frequency. |

Quadrant Analysis

A primary purpose of customer satisfaction research is to gain an understanding of the match between customer needs, wants, and expectations and how well a company is delivering products and services that meet those needs, wants, and expectations. Quadrant analysis is one way to analyze the two dimensions of customer needs or expectations and an agency's rating simultaneously.

Quadrant analysis requires two types of data – the first identifying customer expectations or needs and the second rating an agency as to how well it meets these expectations. Asking the following two questions might gather this data.

- 1) I'm going to read you a list of items that people often consider when deciding to use public transportation. As I read each, please tell me how important this item is to you when deciding to use public transportation. Use a 5-point scale where "5" means "extremely important" and "1" means "not at all important."
- 2) Now I'm going to read the same list of items. This time, please tell me how well you feel each statement describes [agency name]. Use a 5-point scale where "5" means "describes very well" and "1" means "does not describe at all."

The items used in the questions are the same as those items identified as "critical performance attributes." There are many options for scaling. The choice depends on the type of customer being interviewed and the interpretative nature of the data wanted.

Once the researcher obtains these two types of data, the analysis is accomplished by plotting the coordinates of importance and ratings for each attribute on one graph. One axis represents the importance measure, while the other axis illustrates performance scores or ratings. The result is a two-dimensional plot that visually depicts the relationship between these two scores. This visualization enables the researcher both to analyze the data and to communicate insightful evaluations to management.

The figures on the next page show a simple, yet insightful application of a quadrant analysis. Exhibit 24 illustrates the data used in this example. While the researcher could simply present the data as shown, reading it is difficult and little interpretation is possible. For example, based on this data, an agency may elect to put its resources toward those attributes that are most important to respondents – on-time performance, nighttime safety while riding, nighttime safety while waiting, and safe bus operation. Or, they may decide to allocate resources to those areas where respondents are most dissatisfied – nighttime safety while waiting, number of stops to destination, and nighttime safety while riding.

By plotting the coordinates of importance and ratings for each attribute on one graph, the user obtains a clearer and very different picture where best to allocate scarce resources. In Figure 22, the *percent very important* and *percent very satisfied* are used. Other forms of the data – means, standardized scores, etc. – also can be used. There has been considerable literature developed as to the best types of data to use for this analysis.

Based on this quadrant analysis, the recommendation would be to allocate resources to those areas that are important to customers and where satisfaction is low – nighttime safety while waiting for and riding the bus, travel time by bus, on-time performance, and ability to get information by phone – a very different picture than what was discovered by looking at importance and satisfaction scores separately.

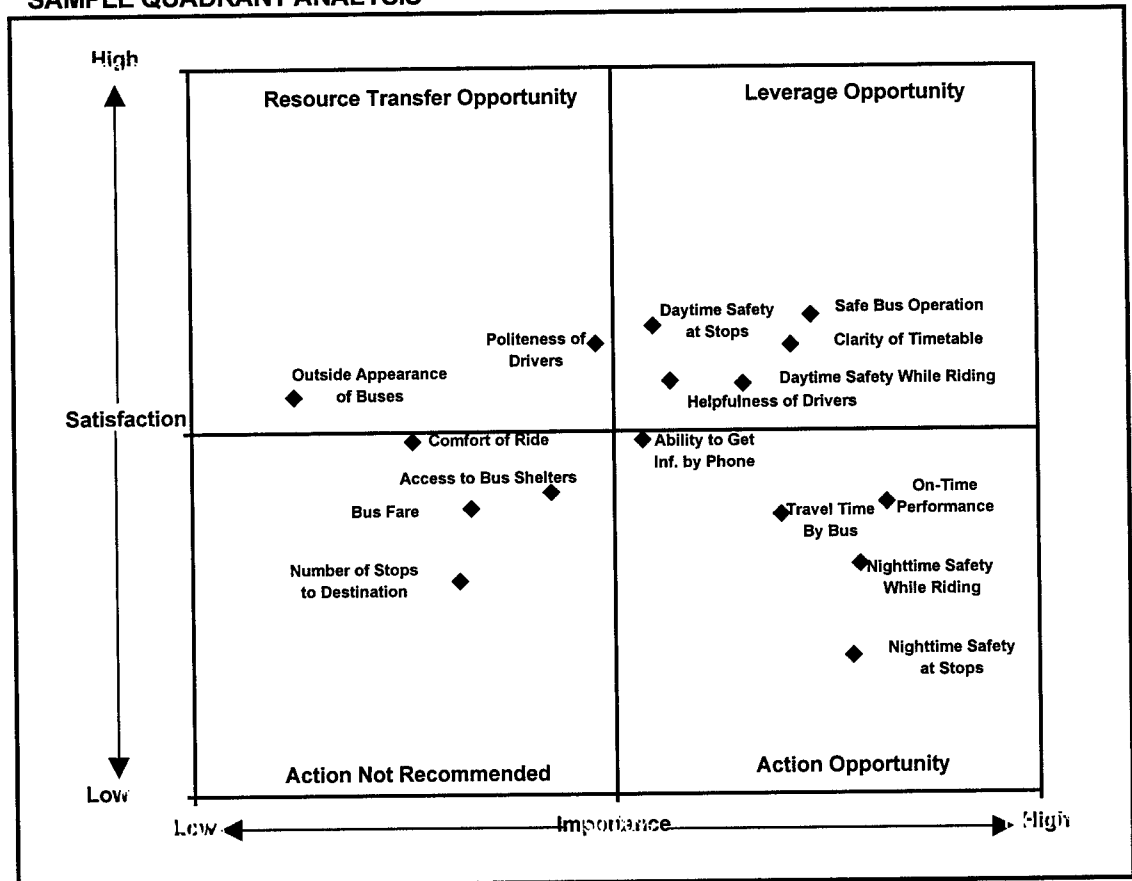


EXHIBIT 24 **DATA FOR A TYPICAL QUADRANT ANALYSIS**

| | Importance (% Very Important) | Rating (% Very Satisfied) |
|-------------------------------------|----------------------------------|------------------------------|
| On-Time Performance | 82.2% | 40.0% |
| Nighttime Safety While Riding | 79.0 | 31.5 |
| Nighttime Safety While Waiting | 78.1 | 18.9 |
| Safe Bus Operation | 73.4 | 65.7 |
| Clarity of Timetable Information | 71.0 | 61.6 |
| Travel Time by Bus | 69.7 | 38.4 |
| Daytime Safety While Riding | 65.3 | 56.3 |
| Helpfulness of Drivers | 56.7 | 56.7 |
| Daytime Safety While Waiting | 54.7 | 64.3 |
| Ability to Get Information by Phone | 53.4 | 48.8 |
| Politeness of Drivers | 47.9 | 61.9 |
| Access to Bus Shelter | 42.5 | 41.6 |
| Bus Fare | 33.0 | 39.4 |
| Number of Stops to Destination | 31.6 | 29.4 |
| Comfort of Ride | 26.1 | 48.7 |
| Outside Appearance of Buses | 12.1 | 54.8 |



FIGURE 22
SAMPLE QUADRANT ANALYSIS



Reward-Penalty Analysis

Thus far, the analysis has looked at the distribution of a single variable and/or the relationships or associations between two variables. Several multivariate methods of analysis offer the opportunity to assess the relationships or patterns among more than two variables simultaneously. Some methods commonly used in customer satisfaction research include correlation analysis, multiple regression analysis, discriminant analysis, factor analysis, correspondence analysis, and conjoint analysis. Providing illustrations of all these methods is far beyond the scope and purpose of this handbook. However, to illustrate the strength and richness of these methods, one example is provided.

A frequent question that decision-makers want addressed is where to allocate resources. While the quadrant analysis illustrated above provides some insight into this question, it does not suggest where improvements are likely to reap the greatest benefits. A “reward – penalty” analysis – using multiple regression analysis – provides further insight into the impact of service improvements in specific areas on overall customer satisfaction.

Multiple regression is a statistical technique used to develop an equation that predicts or estimates the value of a dependent variable based on the values of one or more independent variables. Here, the equation is used to understand the impact of improvements in customers’ ratings of individual performance on their overall satisfaction with the agency. Regression analysis helps in understanding the importance and predictive accuracy of the performance attributes. Multiple regression analyses are easy to generate with available computing technology. Unfortunately, however, the results of a multiple regression analysis may be difficult to interpret without the help of a professional statistician. Again, it is beyond the scope of this handbook to go into the details of how to do regression. Rather, the purpose of the following example is to give the reader an idea of the type of insight this type of analysis can lend to decision-making. If at some future date, regression analysis seems an appropriate method, the researcher should take extra care in ensuring an understanding of the underlying assumptions and theory inherent in the analysis.

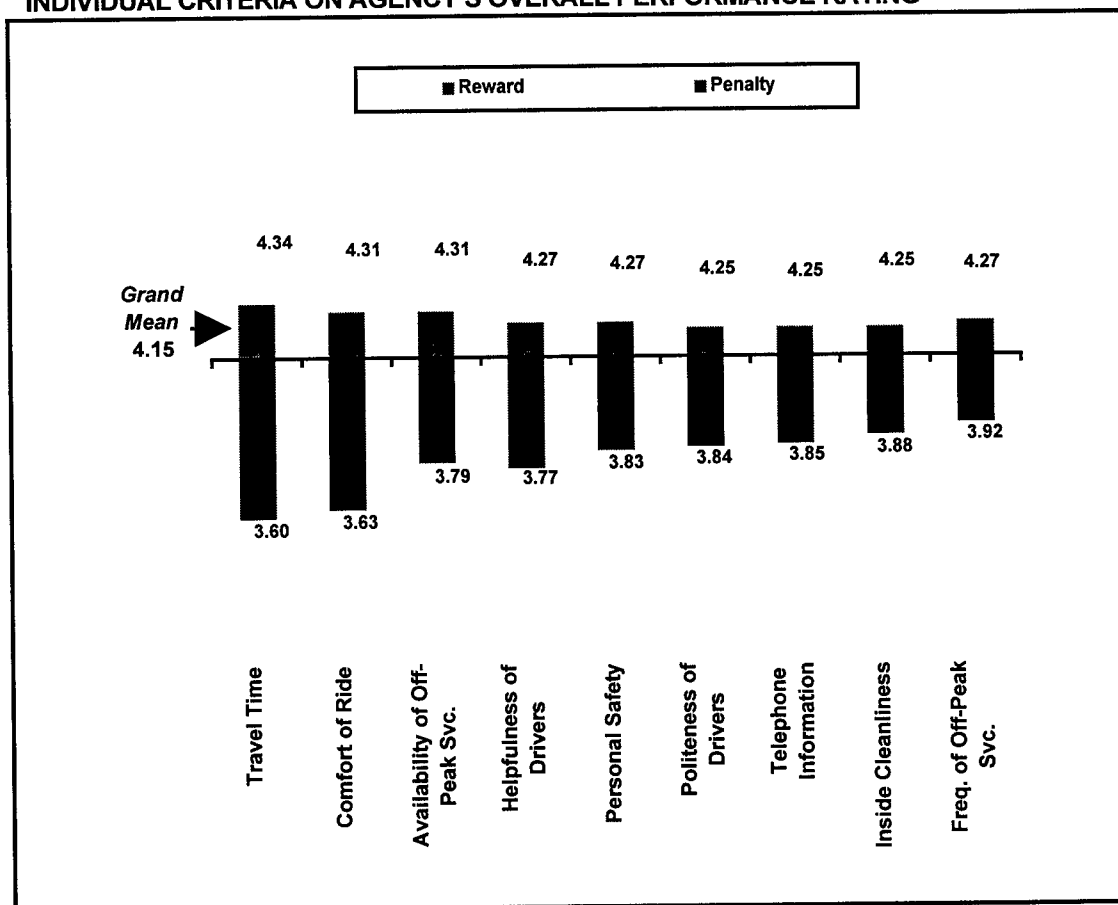
To accomplish this analysis, respondents were asked to rate a transit agency’s performance as to its overall performance – the dependent variable – and as to its performance on twenty-three critical performance attributes – the independent variables. The resulting equation showed that nine of the twenty-three original independent variables explained over half the variation in the value of the dependent variable – overall performance. The equation then can be used to estimate the change that would occur in overall performance if the agency improves service in any single area. Conversely, the equation can be used to estimate the change that would occur in overall performance if quality of service declines in any one area. In our example, therefore, we can identify what will happen to the agency’s overall performance score if all its efforts are placed in improving service in one area.

Figure 23 illustrates the results from this analysis. It shows that overall satisfaction will increase from 4.15 to 4.34 if the agency places all of its efforts into improving travel time. In other words, scoring a “5” on travel time, while all other issues remain constant, would improve the overall grand mean from 4.15 to 4.34. Conversely, the penalty numbers reflect the effect if the agency were to fail – receive a rating of “1” – on the specific criteria.

The analysis suggests that improvements in travel time are likely to achieve the greatest improvement in the overall performance rating. However, this improvement is not much greater than that which the agency would achieve if they made improvements in the other eight areas. On the other hand, decreases in travel time and comfort of the ride are likely to have the greatest negative impact on the overall performance rating. The recommendation would be to maintain and/or improve service in these two areas.



FIGURE 23
REWARD – PENALTY ANALYSIS – EFFECT OF CHANGES IN DELIVERY OF
INDIVIDUAL CRITERIA ON AGENCY’S OVERALL PERFORMANCE RATING



Putting It All Together: High Quality, Actionable Research

As shown, when using the right tools, customer research – notably customer satisfaction research – creates a wealth of strategic information about customers, the transit agency, and the environment in which the agency operates.

The following Roadmap summarizes some simple strategies to keep in mind to conduct high quality, actionable customer research.



ROADMAP 22 CONDUCTING HIGH QUALITY, ACTIONABLE RESEARCH

| | |
|--|---|
| ✓ Use the voice of the customer. | Ensure that the evaluation criteria against which an agency's performance is measured are based on attributes and terminology used in the market place. The criteria should reflect all elements that are part of the customer's evaluation process and reflect the thought process of the customer. Internal agency terminology should not be used during the interviewing process. |
| ✓ Include quantitative and qualitative information. | Quantitative data is critical to the overall measurement effort. Qualitative information is equally important. Upfront qualitative information is helpful in designing a customer-oriented research effort. Following a survey, such information lends insight into the quantitative measures, bringing dynamics and causal data to the analysis. Qualitative information gives the "why" and "why not," "how," and "please explain" to the data. |
| ✓ Pretest the questionnaire and sample design. | Pretests allow researchers to modify and finalize the questionnaire and sample design to incorporate the voice of the customer. Results of pretest interviews ensure that the evaluation criteria are properly identified, criteria are defined using the words of the customers, research methodology is appropriate and technically correct, and questionnaire obtains reliable and valid responses. |
| ✓ Define performance targets. | To develop and implement improvement strategies that address the concerns of the marketplace, specific quality targets for key evaluation factors should be sought. Query respondents about their definitions of ideal and acceptable levels of performance. This information will help develop actionable steps for improvement. |
| ✓ Use an unbiased sample. | When designing the sample, once the population of interest has been defined and sampling frame identified, use a random selection process. This will ensure that any particular group of respondents does not bias results – for example frequent riders. |
| ✓ Use experienced researchers. | To obtain specific and accurate performance targets, use experienced researchers. They should be experienced in both customer research methods and in the industry under study. Experienced researchers are able to probe in depth as well as accurately and quickly assess respondent input. Moreover, experienced researchers will use the appropriate analytical tools. |
| ✓ Ask for improvement suggestions. | Include questions that suggest information about specific areas of needed improvement, including product and service improvement areas. Seek suggested priority of improvement strategies. Incorporate these questions into the latter part of a questionnaire. |
| ✓ Include market-driven questions. | Include questions on respondents' likelihood to continue to use transit or other measures of customer loyalty. These market-driven questions lend insight into the overall satisfaction of respondents. |
| ✓ Use techniques that emphasize improvement. | When analyzing data, the most useful techniques are those that assist in identifying and prioritizing improvement requirements. Simple scorecard techniques are just that – simple. They provide minimal dynamics and strategic input. Use multivariate methods that not only show the priority of improvement strategies but also the impact of such strategies on overall performance. |



Turning Customer and Market Research into Organizational Knowledge

Effectively Deploying the Voice of the Customer Throughout the Organization

TOOLBOX

- On Road Signs & On Ramps: Where Do We Go From Here? Effective Information Use in Decision-Making
- Hazard Signs & Traffic Jams: Obstacles To The Effective Use of Market and Customer Research
- On The Road Again: Tips On Overcoming The Obstacles

You Have The Data. Now What?

In his book *Future Shock*, Alvin Toffler talks about the . . .

"disorientation and decision overload produced by high-speed change. . . [which] sometimes leads to a breakdown of our capacity for rational decision-making."¹

Toffler and other noted authors suggest that competitive advantage will no longer simply reside with those who have information. Rather, the essence of competitive advantage will reside increasingly in how information about the market and about the customer is used.

One effect of the increased tempo for decision-making is that the time available to gather, interpret, and integrate information has been shortened. Often the demand for action is so great that data are hastily assembled, used, and assumed adequate. Sometimes, the decision has been made by the time the data are collected, rendering the data obsolete and of little value. Thus, in recent years, there have been many changes in the general information environment. Moreover we have witnessed changes in the ways in which information is gathered and used.

Transit managers today are faced with a significant task of making more effective use of market and customer research. So important is information that Robin M. Hogarth stated in *Judgment and Choice*:

Indeed it has been said that we are now living in a second industrial revolution; but instead of steam, the new revolution is being propelled by information. And, as in the first revolution, relative success will be determined by the ability to handle the propelling force. . . There can be little doubt that the need today is for conceptual skills, that is, the ability to process information and make judgments.ⁱⁱ

Following are some conditions that now make it imperative for transit managers to understand how to use information to improve the quality of their decision-making.

- **Fewer options.** In today's environment with limited funding, increased legislation and regulation, and greater demand for limited services, there are often fewer available strategies or actions than in the past. Information can serve to weed out bad alternatives, enabling transit agencies to focus their efforts in those areas likely to have the greatest impact on ridership and the achievement of other goals.
- **Overload.** The sheer volume of data and resulting analyses is often overwhelming. Census data, farebox data, complaint cards, federal studies, ridership reports, internal market surveys are just some data that now are available to transit agencies. This volume of data can lead to a reaction against the use of any information – paralysis by analysis.
- **More frequent surprises.** Markets are changing more rapidly than in the recent past. Thus, the time for decision-making is shortening. This leads to greater amounts of uncertainty surrounding important decisions. More than a resource constraint, uncertainty is becoming the archenemy of many managers.

Simply having information available does not ensure that it will be used. Agencies can eliminate or at least reduce many barriers to the use of research information by taking better care during the research design phase. However, even the best designed and executed research may not be used. Getting research used often depends on its quality, and how well it is presented. It also depends on other factors, including the degree of trust between researchers and research users, and the organizational culture and structure.

The purpose of this chapter is to identify strategies for presenting research results and developing an organizational structure and culture that encourage the use of market and customer research.

Obstacles to the Effective Use of Research

Failure to use appropriate information or use it effectively can hinder productivity and increase the time it takes to take new products and services to the marketplace. Simply doing "good research" does not guarantee that the findings will be used. To maximize the value of market research in an organization, the researcher must understand how managers think, and work with them to remove potential bias against using the research findings.

Organizational research and research on the use of market information suggest seven serious obstacles to the effective use of market and customer research findings.ⁱⁱⁱ

- **Post-survey regret** is the regret following data collection that certain questions were not asked or were not asked differently. Statements such as, “If only we had asked . . .” “Why wasn’t [question] included in the research?” “It’s too bad we asked the question using this scale instead of . . .” are indicative of this obstacle. Some post-survey regret is unavoidable. In fact, if used as part of a debriefing process when research is completed, post-survey regret can be effective in improving the overall research efforts conducted at the agency. Moreover, post-survey regret does suggest the research is being considered thoughtfully and used. However, significant post-survey regret need only occur a few times before managers become discouraged with the potential value of the research.

To eliminate many sources of post-survey regret, the researcher and managers should simulate the use of the information before doing the actual data collection and analysis. This prompts thinking about the actual use of information and may lead to changes in research methods and instruments that will produce more usable results.

- **Data-poor thinking** occurs when managers and researchers think about potential outcomes of the research without any data either real or contrived. To encourage effective research, researchers and managers should make the effort to think about specific empirical outcomes well in advance of actual findings. During this process, data – even hypothetical data – should be used, thus leading to more creative and comprehensive thinking. For example, one might ask what action would be taken if the results from a survey showed a specific percent of respondents answered an important question in one way. This process is important, as it helps identify important differences in perspectives among managers. Managers and researchers will then be better prepared to interpret results and to do so more quickly, perhaps shortening the decision time. Moreover, they are better prepared to translate research results into specific actions.
- **Pseudo-clairvoyance** is the impression by managers that they could have predicted the empirical outcome of a survey research project. It is exemplified by statements such as, “I could have told you that,” “I already knew that,” or “I don’t know why we did all this research, it hasn’t told us anything we didn’t already know.” While in many cases research is confirmatory – that is, it validates hypotheses and /or previous data – there are also many new findings.

Pseudo-clairvoyance typically occurs as the manager reviews the research findings. He or she will see a particular result that triggers thinking about what might have caused the result. With the benefit of hindsight these causal factors become more obvious. Findings that managers are able to explain in this way are generally given much greater weight than findings that are less clear. The result – they conclude if they had been asked to predict a specific outcome, they would have correctly given thought to the causal factors causing the actual outcome, and thus would have successfully predicted the result. Controlled experiments on pseudo-clairvoyance show that it often is present even when “surprising results” occur.

To address pseudo-clairvoyance, ask managers to predict important data outcomes during the research design phase. This serves to document for the individual manager the difference between what he or she predicted and the actual outcome. That then provides a better sense of the value of the research. It also provides a mechanism to calculate the value of individual questions and of the overall project to managers. The higher the discrepancy among managers’ expectations and predictions for a given questionnaire item and the more important that item is, the more valuable the findings for that particular question.

- **Misunderstanding comfort zones** reflects the manager's expected and accepted ranges for research findings. Much of the research in the use of market and customer research has shown that while managers often suggest they are conducting research to discover new factors, they are in many cases uncomfortable with surprising results. In the survey of transit agencies conducted for this project, agencies who believed strongly the results of the research were "politically acceptable to the agency" were nearly four times as likely as those who did not strongly feel this way to say their most recent research project was "very successful."ⁱⁱⁱ

The typical response when a manager is uncomfortable with survey research results is to call the research design and implementation into question. The tendency is to find out what source of error can be used to explain the unanticipated results.

Being critical of findings that fall outside the comfort zone has both positive and negative benefits. On the positive side, it ensures that research is not accepted at face value. Where research results are unexpected, causal factors should be identified. On the negative side, however, all too often results that fall outside an agency's comfort zone are simply not used. Moreover, the less expertise and/or experience a manager has, the narrower their comfort zone. Thus, an inexperienced manager may be more likely to not use research results than a more experienced manager may.

To avoid this latter situation, it is important for researchers to understand the comfort zones of the different users of the research. Knowing managers' comfort zones helps researchers decide how to present results. For findings that fall outside a comfort zone, the research should be prepared to discuss findings in advance of any open discussion with other managers. Moreover, they must be prepared to verify the results and to discuss the technical validity of the results. Finally, researchers should take the opportunity to identify other evidence supporting the finding.

- **Failure to perform "action audits"** is one of the most common causes of post-survey regret. Here, research results may suggest a novel decision or action but do not provide sufficient data for its evaluation since it had not been anticipated. This results from managers failing to enumerate alternative actions or decisions before designing the questionnaire. The implication of this failure is often a need to conduct a follow-up study to gather the additional information required to make the final decision.

To avoid this problem, researchers and managers should enumerate alternative actions or decisions before the design of a questionnaire – that is, conduct an "action audit." The action audit should begin by identifying as many actions as possible that might be suggested by the research beyond those that have already been identified. Then the researcher should identify the questions that relate to various actions and the kinds of analyses that will be done with the final data. Finally, the action audit should consider: (a) the importance of a question, (b) the question's utility in developing an action, and (c) what else is needed in choosing or implementing a decision for a given question to be useful. An action audit will identify a wide array of possible actions and better information about those possibilities prior to carrying out the research.

- An **unequal-opportunity methodology** is one that is biased in such a way to favor "good news" answers – as opposed to allowing equal opportunity for both "good" and "bad" news answers. Selection of an unequal-opportunity methodology rarely is the result of an intentional effort to bias the research results. Rather, it is a consequence of a poorly thought out research design and/or poorly implemented research program.

The sources of bias in a research effort are many and varied. For example, an on-board sampling procedure may result in a cluster of riders being over- or under-represented, thereby giving incorrect emphasis to their thoughts and behaviors. Subsequent analyses are incorrect because of this bias, as is the interpretation and reporting of the results. Another common unequal-opportunity methodology is the use of an improperly balanced rating scale. At the positive end might be three points representing different levels of satisfaction – “extremely,” “very,” and “somewhat” satisfied. On the other hand, the negative side of the scale simply consists of “dissatisfied.” This scale does not allow respondents who are dissatisfied with service to express the intensity of their feelings.

To overcome the problems inherent in the use of an unequal-opportunity methodology, the researcher must understand the sources of bias inherent in any poorly planned and/or executed research effort.

- ***Missing information and uncertainty*** occurs when there is uncertainty remaining after formal research is conducted due to missing information and lack of relevant experiences. This will occur in any research effort. There is never enough time and/or funds to gather all the information one may want. Moreover, research often is an iterative process. That is, one research study will identify information that is missing, or it may reduce uncertainty in one area while identifying new areas of uncertainty as alternatives change based on the research results.

To minimize this problem, managers and researchers should identify early in the research process the areas where uncertainty will persist even after formal research and relevant experiences are brought forth. Use decision and risk analyses to determine whether resources should be (re)allocated to reducing any of these persistent uncertainties, rather than to reducing those uncertainties already being addressed by the planned research. Also, a common understanding about what uncertainties will remain reduces certain post-survey regrets and better prepares the researcher to deal with the uncertainties when asked to do so.

Roadmap 23 contains a summary of the barriers to information use and identifies the means for overcoming them.



ROADMAP 23

STRATEGIES TO OVERCOME THE OBSTACLES TO THE EFFECTIVE USE OF MARKET AND CUSTOMER RESEARCH

| Obstacle | Strategies to Overcome |
|--|--|
| ✓ Post-survey regret: The regret following data collection that certain questions were not asked or were not asked differently. | Simulate the use of information before doing fieldwork. |
| ✓ Data-poor thinking: Thinking about potential outcomes with data either real or contrived. | Think about specific empirical outcomes well in advance of actual findings. |
| ✓ Pseudo-clairvoyance: The impression by managers that they could have predicted the empirical outcome of a survey research project. | Ask managers to predict important data outcomes during the research design phase. |
| ✓ Misunderstanding comfort zones: A manager's expected and accepted ranges for research findings. | Understand the comfort zones of the different users of the research. For findings that fall outside a comfort zone, be prepared to discuss findings in advance of any open discussion with other managers. Be prepared to verify the results and to discuss the technical validity of the results. Identify other evidence supporting the finding. |
| ✓ Failure to perform "action audits": Managerial enumeration of alternative actions or decision prior to questionnaire design. | Enumerate alternative actions or decisions before the design of a questionnaire – conduct an "action audit." |
| ✓ Unequal-opportunity methodologies: A methodology that is biased in such a way to favor "good news" answers, rather than allowing equal opportunity for both "good" and "bad" news answers. | Understand the sources of bias inherent in any poorly planned and/or executed research effort. |
| ✓ Missing information and uncertainty: The uncertainty remaining after formal research is conducted due to missing information and lack of relevant experiences. | Identify early in the research process the areas where uncertainty will persist even after formal research and relevant experiences are brought forth. Use decision and risk analyses to determine whether resources should be (re)allocated to reduce any of these persistent uncertainties, rather than to reducing those uncertainties already being addressed by the planned research. |

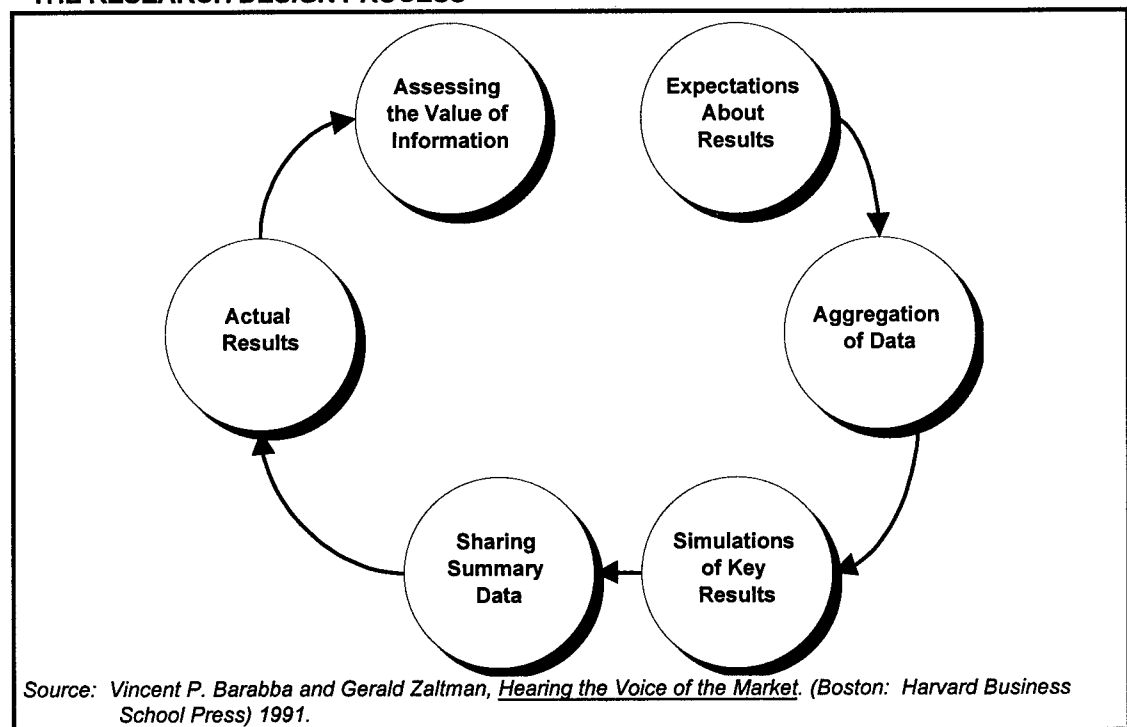
Overcoming the Obstacles

Knowledge Use®: Designing Effective Research to Overcome Obstacles

A carefully thought out research design can overcome most of these obstacles. To enhance the utility of the research design process, Vincent Barabba, Executive Director, Market Research and Planning at the General Motors Corporation, and Gerald Zaltman, Professor at Harvard Business School, developed a six-step process, known as KNOWLEDGE USE®. KNOWLEDGE USE® should be used at the point when the researcher develops a near-final draft of the questionnaire. The researcher selects key items or questions, and uses them as input to KNOWLEDGE USE®. He or she sends a short questionnaire to the managers who will be using the research results. The researcher can calculate results from the questionnaire with a calculator and spreadsheet.



FIGURE 24
KNOWLEDGE USE® – A SIX-STEP PROCESS TO ENHANCE THE UTILITY OF THE RESEARCH DESIGN PROCESS



An example illustrates these six steps.^{iv} The example assumes a typical survey questionnaire, developed through a series of discussions between managers and researchers.

Step 1: Expectations about Results. Each manager receives an information packet from the researcher. The packet contains instructions and the questionnaire items the researcher has selected as input to KNOWLEDGE USE®. The manager is asked to give the following information for each question:

- 1) **Expected result:** The average result the manager expects. For example, for a question with a rating scale, each manager would enter what the average rating would be. For a closed response question – e.g., “yes” or “no” – the percent of respondents the manager believes will say “yes.”
- 2) **Comfort zone:** The range of results that the manager would not find surprising and/or difficult to believe. Here the manager would suggest the numbers above or below their prediction of the expected result that have a 10 percent chance or less of being obtained.
- 3) **Significance:** Managers then rate the importance of each question. Importance is equated to the significance of their being wrong in their expectations of results. That is, how serious would it be if, lacking a research result, managers acted based on 1) their expectation of what the results would be, and 2) they were wrong about the results?
- 4) **Comments:** Managers can record any other comments regarding the items being tested.

Exhibit 25 illustrates the KNOWLEDGE USE® questionnaire that would be sent to each manager. Also shown are one manager’s responses to the questions.

This manager expected that the average respondent would be slightly above average – or a 3.5 on the 5-point scale (A). Moreover, this manager expected that there is an 80 percent chance that the actual average response would be between 2.5 (the lowest likely response B.1) and 4.0 (the highest likely response B.2). That is, there would only be a 10 percent chance that the average response would be less than 2.5. In addition, there would only be a 10 percent chance that the average response would be more than 4.0. This, then, is this manager’s comfort zone. Finally, this manager feels that if he or she acted based on the average response he or she expected (3.5) and was, in fact, wrong, there would be serious consequences. That is, the importance of the question – or significance of being wrong – was rated 4.5 on a five-point scale (C).



EXHIBIT 25 KNOWLEDGE USE® – STEP 1: EXPECTATIONS ABOUT RESULTS

| | | | | | |
|--|---------------------------|-----------|-----------|----------------|---------------------|
| A. Overall, would you say the quality of public transportation service [Agency] provides is . . . | 1 Poor | 2 Fair | 3 Good | 4 Very Good | 5 Excellent |
| B. Expected average response | | | | 3.5 | |
| B1. Lowest-likely average response (<i>i.e., there is only a 10 percent chance the average response will be less than this number</i>) | | | 2.5 | | |
| B2. High-likely average response (<i>i.e., there is only a 10 percent chance the average response will be higher than this number</i>) | | | | 4.0 | |
| C. Importance of question (significance of being wrong) | 1 Not at all Important | 2 | 3 | 4 | 5 Very Important |
| D. Comments | | | | | |

Step 2: Aggregation of Data. Next, the researcher calculates the amount of consensus – that is, the variance – among managers with respect to:

- 1) The average predicted outcome,
- 2) The expected average upper and lower boundaries (comfort zones), and
- 3) The average importance aggregated for all managers.

As suggested, the researcher can complete these calculations on any spreadsheet, or even with a hand-held calculator.

Step 3: “Good News,” “Bad News,” and “Surprise” Simulations of Key Results. The researcher then develops a set of analyses that simulate the analyses that are likely to be done with the data collected. To the extent possible, these are presented in the format planned for the final report. The analyses are based on the predictions provided by managers and on the nature of the comfort zones. The researcher should simulate three alternative kinds of results: “good news,” “bad news,” and “surprises.”

Step 4: Sharing Summary Data. Exhibit 26 illustrates the data aggregated for five managers. It contains two basic sections:

- 1) **Expected result.** The first line shows that the average expected outcome among the five managers was 3.0. The expected outcomes for each individual manager are shown on the second line. As can be seen, there is a good deal of consensus.
- 2) **Comfort zone.** The upper and lower ranges are also provided. Here, one manager thought that an outcome below a 1.5 average had a 10 percent chance of happening while another felt that an outcome above a 4.5 had a 10 percent chance of happening. For most, the comfort zone ranged from “3” to “4.” The final line shows the importance. It shows that two managers felt that this was a very important question while two felt it was of average importance.

When the data has been aggregated, the researcher meets with the management team and presents the summary form along with the simulated alternative results. A discussion of the results follows that is likely to result in a better understanding of the process and some changes in the questionnaire that otherwise might not have been made, thus reducing sources of post-survey regret. The researcher may then circulate a revised questionnaire to managers for final review.



EXHIBIT 26 KNOWLEDGE USE® – STEP 4: SHARING SUMMARY DATA

| | | | | | |
|---|----------------------|--------------------|------|----------------|-----------|
| Overall, would you say the quality of public transportation service [Agency] provides is poor, fair, good, very good, or excellent? | | | | | |
| Expected Result | | | | | |
| Group average | GA | | | | |
| Individual | i | | | | |
| Other managers | III I | | | | |
| | Poor | Fair | Good | Very Good | Excellent |
| Comfort zone | | | | | i |
| | GA | | | | |
| | GR | | | | |
| | Poor | Fair | Good | Very Good | Excellent |
| Importance | | | | | |
| Group average | | | | | GA |
| Individual | | | | | i |
| Other managers | ii | | | | i |
| | 1 | 2 | 3 | 4 | 5 |
| | Not at all Important | | | Very Important | |
| Key: | | | | | |
| i = individual manager | | GA = Group average | | | |
| I = other managers | | GR = Group range | | | |

Step 5: Actual Results. After the data have been collected, analyzed, and shared, each manager receives a report that shows the average of the actual survey results, the average predicted result for the group, and his or her own prediction. This helps address the issue of pseudo-clairvoyance. Managers also receive information about their own and the group's comfort level. Exhibit 27 illustrates this report. It is evident that the actual average obtained in the survey was nearly a 4.0, higher than the expected result, within the average comfort zone, but a surprise to the manager illustrated.



EXHIBIT 27 KNOWLEDGE USE® – STEP 5: ACTUAL RESULTS

| | | | | | |
|---|------|--------------------------------------|------|-----------|-----------|
| Overall, would you say the quality of public transportation service [Agency] provides is poor, fair, good, very good, or excellent? | | | | | |
| Results | i | | G | A | |
| | 1 | 2 | 3 | 4 | 5 |
| | Poor | Fair | Good | Very Good | Excellent |
| | 1 | 2 | 3 | 4 | 5 |
| | Poor | Fair | Good | Very Good | Excellent |
| Comfort Zone | i | | | | |
| | GA | | | | |
| | GR | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Poor | Fair | Good | Very Good | Excellent |
| Key: | | | | | |
| G = average for group | | A = actual survey result | | | |
| GA = Group average | | I = each manager's importance rating | | | |
| GR = Group range | | | | | |

Step 6: Assessing the Value of Information. Finally, managers receive a report (Exhibit 28) that illustrates the following points. The researcher should provide a brief interpretative narrative as well. For example,

- The greater the discrepancy between actual and expected results, the greater the likelihood that an incorrect action might have occurred. Here, there is a discrepancy of 2.0 for the individual manager. This is significant given the importance of the question to this manager.
- The greater the variation in the expected results among managers, the greater the value of information. In this case, there is a reasonable consensus among managers about the expected result, with only two managers expecting a higher or lower rating. This data can be used to resolve the differences in perspectives between these two managers and the others.
- The greater the importance of a question or finding and/or the greater the variation among managers in assigned importance ratings, the greater the value of simulating the final results and the value of auditing possible actions. Here, most managers consider the question at least somewhat important. Therefore, there is value to asking the question. Moreover, asking the question paid off. The result surprised at least one manager and caused him or her to alter their thinking and the actions they would originally have taken as a result of this research.
- Finally, the greater the uncertainty about particular results, the more informative the findings. In this case, there was a fair amount of uncertainty. Moreover, it was considered an important question. Therefore, the question has considerable value.



EXHIBIT 28
KNOWLEDGE USE® – STEP 6: ASSESSING THE VALUE OF INFORMATION

| | | |
|--|-------------------|--------------|
| <i>Overall, would you say the quality of public transportation service [Agency] provides is poor, fair, good, very good, or excellent?</i> | | |
| | Individual | Group |
| Discrepancy (between expected and actual result) | 2.0 | 1.4 |
| Importance (significance of being wrong) | 4.5 | 3.5 |
| Uncertainty (comfort zones) | 2.2 – 3.5 | 1.5 – 4.5 |

Use of this tool serves several important purposes.

- It serves to reduce the most common sources of post-survey regret by causing researchers and managers to think about the use of information early in the research process. By thinking about the actual use of the information, the agency can make changes in research methods and instruments to produce more usable results.
- It allows for the surfacing and sharing of management assumptions about expected outcomes, information utilities, and comfort zones. This process is especially important when there is a lack of a consensus among managers and an unawareness of this lack. In any study, it is likely that there will be at least one and possibly several questions where different managers believe they all shares essentially the same assumptions. In reality, they have very narrow comfort zones on an important question and these comfort zones differ considerably. Having information to identify the absence of a consensus among managers is important. Once the agency understands and discusses this lack of a consensus, they can decide whether to collect additional research information to help reconcile the differences.

- Taking the time to go through this process before collecting the data will enhance the overall quality of the research effort. An important message that emerges from this process is that the quality of thinking about a decision after the data have been collected is largely determined by the quality of thinking before data are collected.

Preparing and Presenting Research Results for Maximum Use

Researchers and managers agree that the technical quality of the research is the primary determinant of research use. At the same time, however, these same individuals suggest that the technical quality of the research they receive is frequently variable.^{iv}

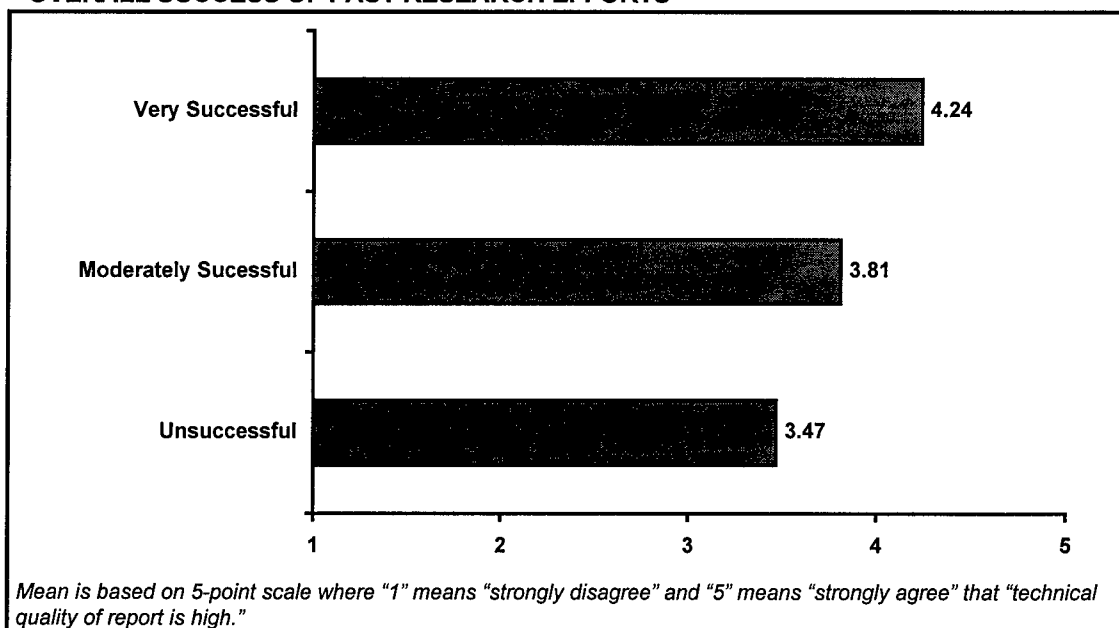
To illustrate, in a survey of transit agencies 36 percent of the responding agencies felt that their most recent research effort was “very” successful. However, half reported that the effort was only moderately successful and 14 percent felt it was not at all successful.

Concerns about the usability of the results and the quality of reports contribute greatly to managers’ evaluation of the success of past research efforts. Those agencies suggesting that their most recent research effort was less than “very” successful gave lower ratings to the **usability** of the results, notably as reflected by the extent to which the recommendations made from the research were practical or actionable. Moreover, these agencies gave lower ratings to the quality of the respective reports developed as part of the research effort. They cited concerns about the following:

- Extent to which the conclusions drawn followed from the data,
- Clarity of the language used in the report,
- Amount of explanation of the findings in the report,
- Complexity of the analysis, and
- Timeliness with which they received the report or data to be useful.^{lv}



FIGURE 25
INFLUENCE OF REPORT QUALITY ON MANAGERS' PERCEPTIONS OF
OVERALL SUCCESS OF PAST RESEARCH EFFORTS



Many factors contribute to the technical quality of the research. For example, as discussed in Chapter 3, careful **planning** at the start of the project is key to the success and quality of a research endeavor. Additional factors that contribute to the technical quality of the research – research design, sampling, data collection, data analysis – are discussed in Chapter 5. No matter how appropriate the research design, how proper the statistical analysis, how representative the sample, how carefully worded the questionnaire, how stringent the quality control checks for data collection, or how well-matched the research is to the original research objectives, all is often for naught if the researcher cannot communicate with the decision-makers. The research design and process of conducting the research determine the content of the research effort. The report provides the form, and since the report is all that many managers see of the project, it often becomes the yardstick for evaluation.

Despite these somewhat obvious truisms regarding the importance of the research report, one continues to see research reports that show that the quality of these reports is a problem area. One frustrated executive went as far as to say,

"I am convinced reports are devices by which the informed ensure that the uninformed remain that way."^{vii}

The writer of a research report must ensure that the report informs, without being misinforming.

The market research report has three primary roles to fulfill.

- ***The research report must communicate the study's specifics.*** The market research report has the critical function of containing a complete and accurate description of the relevant findings of the research project undertaken. That is, it must be detailed and communicate to the reader the following items:
 - 1) Summary of the findings, conclusions, and recommendations;
 - 2) Central background information;
 - 3) The research objectives;
 - 4) An overview of the research methods used;
 - 5) The findings displayed in tabular or visual format;
 - 6) Conclusions; and
 - 7) Recommendations.

A research report should be considered complete when it provides all the information managers need in language they understand. This means that the writer must continually ask whether they have addressed every question in the original assignment. What was the decision being made? What alternatives were examined? What was found? An incomplete report implies that annoying and action-delaying supplementary material will be forthcoming.

This is not to imply that a good report is a lengthy report. A report may be incomplete regardless of its length or brevity. It may be too brief because the researcher has omitted necessary definitions or has given short explanations. On the other hand, the report may be lengthy but not profound. There is a tendency among researchers not to waste collection information. Unfortunately, this may result in presenting information that is outside the interest of the intended readers and that may distract them from the main issues.

The readers' interests and abilities thus determine what clarification should be added and what findings should be omitted. As a rule, the amount of detail included should be proportionate to the amount of direct control the users of the research can exercise over the areas under discussion.

- **The research** report acts as a reference document. Once the research report has been duplicated and distributed to the relevant decision-makers, it begins to live a life of its own. From that point on it serves as a valuable reference document. Most studies cover several objectives and contain a significant amount of information. Normally, however, retaining this information in his or her memory for any length of time is impossible for a decision-maker.

Consequently, decision-makers and others – perhaps those performing a secondary information search or another agency – will turn back to a report, rereading it to reacquaint themselves with the findings of the study. The findings may even serve as a baseline for a follow-up study. Accuracy is a critical factor that determines the usefulness of a research report as a reference document. Clarity of writing also is important and may affect the way in which the information is used. Even accurate information, if presented unclearly, will be misleading.

- **The research report must build and sustain the credibility of the study.** This third and final role cannot be overemphasized. The report must show the reader the degree of care and quality control that went into the market research project. Many readers skip over important parts of reports – descriptions of methodology, caveats, etc. – and go directly to the findings, conclusions, or recommendation. Therefore, the physical appearance of the report affects the credibility of the report itself. Items such as typographical errors, poorly documented tables or figures, inconsistent margins, heading arrangements, or even the cover and binding or choices of typefaces affect the reader's evaluation of the credibility of the study. Therefore, the researcher must pay careful attention to details and to the technical preparation of the report.

Several excellent references provide insight into how to write and present written materials, and on how to develop illustrative tables and charts. However, some common pitfalls encountered in writing research reports include:

- Using length as a surrogate for quality.
- Providing insufficient explanation for data without an attempt at interpretation or real analysis.
- Failing to relate findings to objectives and/or reality.
- Using quantitative techniques indiscriminately, sometimes as a cover-up for ill-defined objectives and methodology.
- Quoting statistics at a level of detail (e.g., two-decimal places for percents) that give an unwarranted illusion of accuracy of "false accuracy."
- Overrelying on single-number research or placing too much emphasis on a single statistic to provide an answer to a manager's decision.
- Interpreting data inaccurately due to lack of knowledge of scaling assumptions, statistical methods, and the study's limitations.
- Using graphic presentations that are misleading.

Roadmap 24 offers some guidelines for determining the quality of the research report.



ROADMAP 24

DETERMINING THE QUALITY OF A MARKET RESEARCH REPORT

- ✓ Does the report contain data from the pertinent survey exclusively, or does it also rely on other data, data from previous reports, or external data to gain more perspective and to control the validity of survey data through external data?
- ✓ Does the report rely on direct statements of respondents, taking them at face value? Or, has more knowledge been brought to light by translating them into new questions, ideas, and new tests, and by applying mathematical / statistical analysis, than would have been obtained by direct questioning of the respondents and simply tallying up their responses?
- ✓ Does the report contain surprising findings? Are these findings numerically established, crucial in providing an answer to the investigation task, and do they have an impact on the concrete conclusions that are drawn? Especially important, does the report contain results that common sense would not have expected?
- ✓ Is the linguistic quality of both reports and tables high? Are specific technical terms of the trade and your specific market used and used correctly? Conversely, how much superfluous jargon is used?
- ✓ Are your questions answered clearly and concisely in the report? Or, is the report written in a fortune-telling style; that is, the assertions of one sentence nullifying that of the other?
- ✓ Does the report contain hints toward the practical significance of the results and consequences for their application? How well has the author immersed himself or herself in the manager's problems?

Establishing and Understanding Trust to Achieve Organizational Buy-In

The trust a user places in the researcher and the process by which the research was conducted is the second factor that influences the use of customer research. Trust has been found to influence the perceived quality of user-researcher interactions, the level of researcher involvement, the level of user commitment to the relationship, and the level of market research use.^{lviii}

Trust is important to research relationships because, among other things, users must frequently rely on market research to make significant policy decisions, even though they are often unable to evaluate research quality. Consequently, being able to trust researchers to ensure quality and to interpret implications correctly for the agency is critical to the user's reliance on research in decision-making.

Trust is a condition between people that reflects the extent to which they can predict each other's behaviors, can depend on one another when it counts, and have faith that the other will act responsibly even in uncertain situations.^{lix} There are many dimensions to trust and ways of developing and maintaining it. However, in the researcher – user relationship, the following are paramount.

- **Be a team player.** Effective researchers and research users know when to be a "team player" and when to stand up for a point about which they feel strongly. A researcher who is a team player will often go along with managerial actions he or she does not feel comfortable with but are not likely to be harmful to the agency. To be a team player, researchers must:
- **Take the responsibility to state explicitly when managers are misusing data.** However, when a particular interpretation or application is not clearly right or wrong, the researcher needs only to state that the validity of this specific use of data is not clear. To make these judgments, the researcher needs to be familiar with the agency to know when a particular use of research will or will not have serious consequences.

- **Be prepared to sacrifice some methodological or interpretative norms to meet a user's deadline or resource constraint.** A researcher who is flexible in responding to user needs can contribute greatly to building long-term trust in the researcher – user relationship. Flexibility also makes the researcher more credible in those situations in which he or she must take a stand – for example, when disputing a use of information is necessary or when they must decline a task because sufficient time or resources are not available to do it properly.
- **Know how to strike a compromise** between always demanding the right thing is done despite time and resource constraints and compromising their values, ideas, or training to meet client demands. Researchers establish trust when they take a firm stand on the important issues. Balancing these two postures is not always easy. One constructive way researchers address the issue is to tell users what they see as the potential positive and negative consequences of alternative uses of information.
- **Be a truth teller.** Honesty is a necessary ingredient in building trust. However, some researchers and users frequently withhold information from one another – a reflection of a basic lack of trust in these relationships. Managers may not share how they used research information if they have interpreted the research in a biased way. In addition, when managers do not feel they can trust researchers to support their research agendas or interpretations, they may refrain from asking for research or from using it when available. Conversely, researchers may not report research results they believe may be seen as “bad news” or that may reflect adversely on the quality of the research process itself. Two strategies can enhance the ability of researchers to be truth tellers.
- **Convince users they are acting in the agency's best interests, even when presenting bad news.** Using the tactics outlined previously for being a team player will help to build this trust effectively.
- **Giving the internal research department a discretionary research budget** or in other ways making the research department less dependent on a few internal clients for their funding can make an internal research department more independent in making judgments.
- **Establish partnerships** or longer-term relationships when working with external firms. Using only a few research suppliers or in other ways making the supplier less dependent on “winning” every new job from the agency will make an external supplier more independent. Independence increases the researchers' inclination to act more in line with overall agency interests, to be more honest with clients, and to present bad news. Moreover, this independence indirectly fosters honest and trusting relationships between researchers and users.
- **Develop mutual understanding.** Researchers and users must develop a common understanding of each other's needs, abilities, and goals. This understanding helps both parties set boundaries that are more realistic in terms of what they expect of one another. This also increases the likelihood that they perceive each other as predictable and dependable.
- **Keep researchers in physical proximity to users.** Proximity allows researchers to develop better personal rapport with users and therefore to feel a larger stake in the user's performance. Moreover, proximity increases the researchers' familiarity with and understanding of the environment in which the user is operating, which in turn creates more focused and relevant research and a more realistic basis for interpreting data. When searching further for specific expertise and/or experience is necessary, allow time during

the initial planning process for the researcher and users to familiarize themselves with each other and to develop a mutual understanding of the environment in which each is operating.

- **Develop methods that allow researchers and managers to have experience in one another's jobs.** When researchers have had operations experience and/or managers have had research experience, their ability to empathize with the other increases. Creating this situation, however, is difficult and impractical. However, efforts can be undertaken to provide a feeling for this experience. For example, one can require new researchers to spend some time in each department at an agency – service planning, operations, marketing, etc. They also can spend time personally interviewing their internal customers and some external customers to gain an understanding of the marketplace in which the agency operates.

On the other hand, one can require new managers to take a basic course or seminar on market research. Many colleges and universities offer continuing education programs on market research that they target specifically to those who will be using the research as opposed to actually doing it. Managers also can gain a better understanding of market research by spending some time at a data collection facility. Actually watching and listening to interviewers collect data over the phone – maybe even personally attempting to complete an interview that can be counted as reliable and valid – will give the research user a greater appreciation of the many details a researcher must manage.

- **Manage bad news.** The ability to present and manage bad news is central to the development of trust between researchers and users. Researchers must develop a special sense of etiquette for communicating findings that do not meet with managers' expectations, that fall outside their comfort zones, or that could be embarrassing for them. This is particularly important in the environment in which public transportation operates, where much of the research conducted becomes public information. Managers agree that if they cannot count on the researcher to be sensitive when they have discovered bad news, the researcher is considered less trustworthy. There are four ways researchers can manage bad news effectively.
 - **Present constructive ways to respond to the bad news.** They can soften the impact of bad news if they can suggest viable strategies for coping with the problem. For example, they can lessen the impact of reporting about a significant decline in customer satisfaction if they can identify reasons for the decline – problems with on-time performance or concerns about personal safety and security – that are under the control of the agency. The researcher can suggest strategies for improvement that the agency can act upon.
 - **Balance bad news with good news.** The worse the news, the greater the need for this balance. Most research projects of any scope have several findings, many of which support expectations, identify attractive decision options, and verify the appropriateness of past decisions. Researchers should take care to bring these findings forward while also clearly presenting the findings and implications of the bad news.
 - **Take precautions to develop valid explanations for the findings.** This may require the researcher to conduct additional analysis to identify underlying factors that may contribute to the overall result. The researcher may also need to work with managers in different departments to understand what, if any, changes have been made in operations, etc. that may have contributed to the result. For example, if analysis shows that a decline in overall customer satisfaction can be attributed primarily to a decline in customer satisfaction among riders living in one part of the service area, discussions with the operations

department may identify factors – construction, route changes, specific security incidences – that have occurred in that specific area. An explanation of why reported data reveal unexpected results helps managers feel they are being given greater insight, not just data.

- **Be prepared to defend the validity and reliability of the bad news.** It has long been known that people's first inclination is to reject information that does not conform to preconceived notions. Researchers must be prepared to stand behind their data. In studies where agencies anticipate bad news, taking extra care in selecting the research supplier may be appropriate. When researchers and consultants are well known for a distinctive experience, their findings are often more believable. Saving the "big guns" for this kind of strategy may be both effective and appropriate. Even when researchers have complete capabilities to "defend" the validity and reliability of the research results, managers and researchers agree on the importance of giving advance warning of bad news. When this is done, managers have an opportunity to work with researchers to present results in a truthful but potentially less dramatic way. Moreover, managers will have time to think about constructive responses. The result of any advance notice is less effort by some managers to potentially discredit the validity of bad news.
- **Absorb uncertainty.** A final factor that affects trust in an indirect but important way is the researcher's ability to absorb uncertainty. No single research study provides all of the information needed to make a totally risk-free decision. Rather, research can uncover but not completely clarify important issues affecting a decision. Moreover, every research approach has limitations, notably with respect to how the researcher can analyze and interpret the data. For these reasons, some uncertainty will remain even after all the data are collected. In fact, the more important an issue or decision, the more likely it is that important uncertainty will remain. However, good researchers can absorb uncertainty rather than pass it along to managers as qualifications and reservations. Some strategies researchers and managers can employ to absorb uncertainty include:
 - **Act with confidence** in an atmosphere of ambiguity by using other research experiences, data from other sources, and their own intuition to fill the gaps.
 - **Augment research data with other information.**
 - **Look beyond the basic analyses and observations made about the data.** This intuition that there is something more to explore often suggests that new analyses with the data should be done.
 - **Be a good team player.** This can help the manager to absorb uncertainty. Managers must frequently act as if the data are clearer than they actually are. They must depend on researchers who are willing to go beyond the data. They also need both the guidance and intellectual company of their researchers. Researcher guidance in these situations enhances the likelihood of making the right decision.

In summary, researchers and managers must work together to enhance the use of information in decision-making. This is most likely to happen in a situation where each understands, respects, and to some extent adapts to each other's frame of reference and needs. Roadmap 25 summarizes key strategies that are likely to enhance this feeling of trust between researcher and research user.



ROADMAP 25 BUILDING TRUST BETWEEN RESEARCHERS AND USERS

| <i>Research providers must . . .</i> | <i>Users of information need to . . .</i> |
|---|--|
| ✓ Understand the user's big picture, that is, their information needs and the underlying reasons for those needs. | ✓ Make the effort to learn about the general aspects and difficulties of gathering useful and adequate information. |
| ✓ Understand the uses and limitations of data and data analysis and be able to explain these strengths and weaknesses in terms the user can understand. | ✓ Accept the fact that getting and properly using information requires hard work, up front and through every step of the process and that there are no shortcuts. |
| ✓ Involve users early and during every step of the knowledge acquisition and utilization process. | ✓ Encourage researchers to become part of the user team without delegating policy-related aspects of the information gathering and analysis. |
| ✓ Ensure broad awareness by establishing a forum for users and potential users of information. | ✓ Plan ahead for information needs. Last-minute requests usually get what they deserve – inaccurate, untimely, irrelevant, and difficult-to-use information. |
| ✓ Learn to communicate in the language of the user and develop an understanding of the constraints under which the user operates. | ✓ Provide researchers with more information about the decisions to be made on the basis of the research they produce. |
| ✓ Adhere to high standards and maintain objectivity throughout the research process. | ✓ Provide the researcher with feedback about the use / nonuse of the research. This is especially important if the agency expects to have a continuing relationship with the firm or if the research provider is an internal department. |

Developing an Organizational Structure for the Effective Use of Research

Finally, the organizational culture and structure of a transit agency contribute to the effective use of market and customer research. The issue of inadequate or ineffective use of available research information because of organizational barriers is not unique to transit. Harold Wilensky, in his famous treatise on organizational intelligence, wrote, "Intelligence failures are rooted in structural problems that cannot be fully solved; they express universal dilemmas of organizational life that can, however, be resolved in various ways at varying costs. In all complex systems, hierarchy, specialization, and centralization are major sources of distortion and blockage of intelligence."^{ix} The following illustrates the inherent conflict that affects the use of information at many transit agencies.

Agency A has a long hierarchical structure. It emphasizes rank. As a result, considerable distortion occurs as information flows upward from low level to high level managers. Because of the process of selectively receiving and processing information by different individuals, new knowledge takes on different shades of meaning as it passes from one person to another. The agency further accentuates this tendency as there is a tendency among lower level managers at the agency to show themselves in the most favorable light to their supervisors.

In their well-intentioned efforts to exert more effective control, senior managers at Agency A are often provided with information that may at best reflect an overly rosy picture of the environment in which they are operating. At its worst, decisions at Agency A may be based on false and misleading information. At the other extreme, consider Agency B.

Agency B has information and marketing intelligence scattered throughout the agency. Each department within the agency is responsible for its own market research and intelligence function. The research is highly specialized and addresses a specific manager's need for information. There is no organizational structure in place to distribute the information. Moreover, much of the data are closely guarded by the manager who contracted the research to protect future budgets. At Agency B, managers often delay decisions as they warily consult each other.

These examples suggest that two dimensions of organizational culture and structure – formalization and centralization – affect the use of market research. Formalization is the degree to which rules at an organization define roles, authority relations, communications, norms and sanctions, and procedures. Centralization refers to the extent to which decision-making authority is delegated throughout an organization and the extent to which managers participate in decision-making.

Your Agency's Organizational Structure

Having managers take the following "quiz" (Exhibit 29) will help your agency gain an understanding of the extent of formalization and/or centralization that exists at your transit agency and how it influences the effective use of customer research. This quiz is based on research conducted by Rohit Deshpande on the organizational context of market research use.^{xi} Only those factors found to contribute to the use of research information are included in the quiz.



EXHIBIT 29 **UNDERSTANDING YOUR ORGANIZATIONAL STRUCTURE AND CULTURE AND ITS EFFECTS ON THE USE OF MARKET RESEARCH**

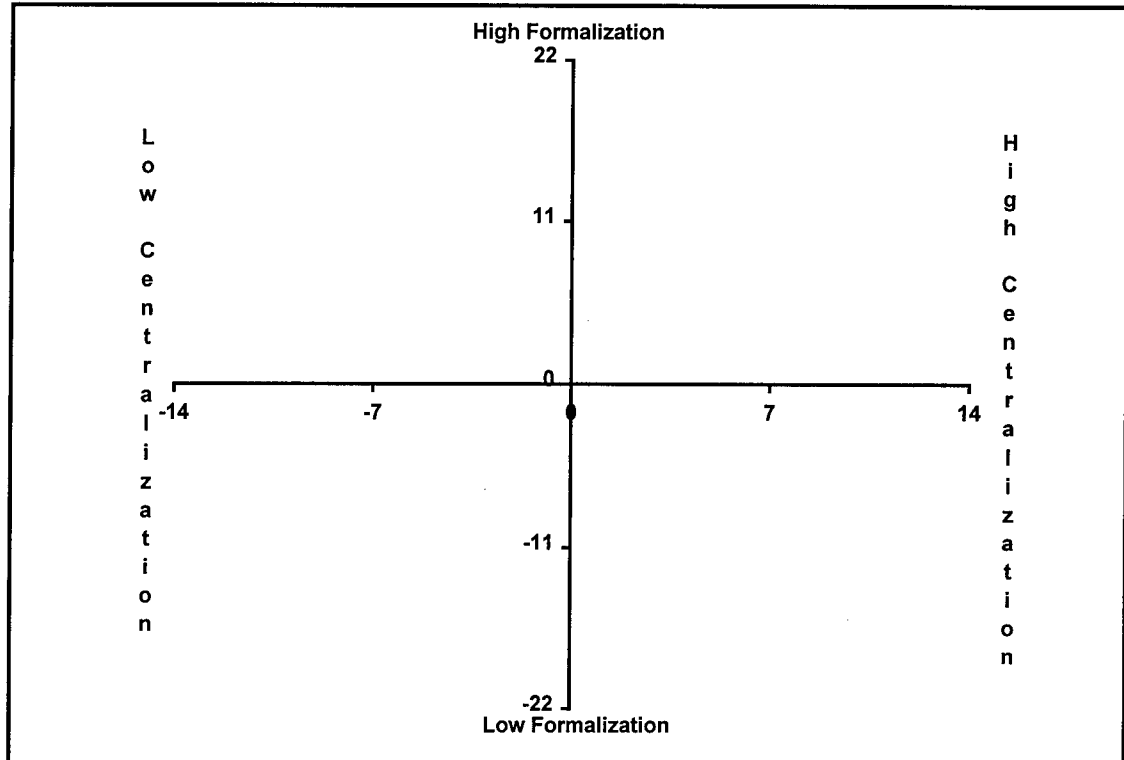
Instructions: Consider a typical customer research project conducted at your agency. In the scoring column (Column #2) indicate the extent to which this statement reflects the "truth" about your agency. Use the following response categories:

| | | |
|-------------------------|--------------------------|-------------------------|
| -2 Definitely false | 0 Neither false nor true | +1 More true than false |
| -1 More false than true | | +2 Definitely true |

| | Scoring Column | Total Score |
|---|----------------|-------------|
| I do not feel that I am my own boss in most matters related to a project. | | |
| I can not make my own decisions regarding a project without checking with anybody else. | | |
| How things are done around here is rarely left up to me. | | |
| I am almost never allowed to do as I please. | | |
| I rarely make up my own rules for a project. | | |
| a. TOTAL: Total the numbers in the scoring column. | | |
| Whatever situation arises, we have procedures to follow in dealing with it. | | |
| Everyone at my agency has a specific job to do. | | |
| Going through the proper channels in getting a job done is constantly stressed at my agency. | | |
| My agency keeps a written record of everyone's performance. | | |
| We have to follow strict operating procedures at all times. | | |
| Whenever we have a problem we are supposed to go to the same person for an answer. | | |
| b. TOTAL: Total the numbers in the scoring column. | | |
| c. TOTAL FORMALIZATION SCORE: Total a + b | | |
| If I wish to make my own decision, I would be quickly discouraged. | | |
| Even small matters on a job have to be referred to someone higher up for a final answer. | | |
| I have to ask my boss before I do almost anything. | | |
| Any decision I make has to have my boss' approval. | | |
| d. TOTAL: Total the numbers in the scoring column. | | |
| Instructions: In the scoring column (Column #2) indicate how often you participate in each of the following types of decisions. Use the following response categories: | | |
| -2 Always | 0 Sometimes | +1 Rarely |
| -1 Often | | +2 Never |
| | Scoring Column | Total Score |
| How often do you participate in decisions on the adoption of new products or services? | | |
| How often do you participate in decisions on the modification of existing products or services? | | |
| How often do you participate in decisions to delete existing products or services? | | |
| e. TOTAL: Total the numbers in the scoring column. | | |
| g. TOTAL CENTRALIZATION SCORE: Total d + e | | |
| Instructions: Plot your total "formalization" and "centralization" scores on the chart on next page. | | |



FIGURE 26
FORMALIZATION / CENTRALIZATION MATRIX RELATED TO THE
ORGANIZATIONAL STRUCTURE AFFECTING THE USE OF MARKET RESEARCH



Managers and researchers who see themselves as operating in an agency that is relatively decentralized – low centralization – and has few formalized procedures for carrying out tasks – low formalization – are likely to make extensive use of market research information.

Looking at the questions that define centralization, one finds that whether or not managers are their own boss and whether or not they could make decisions on their own, or whether or not they were required to "go through channels" defines their use of market research. On the other hand, looking at the questions constituting formalization, it seems that managers tend to use research more when they feel that they, rather than their colleagues or bosses, are in control. These managers feel they have substantial latitude in defining their roles. Moreover, they feel they are working in organizations or departments where strict operating procedures do not exist or, if they do exist, do not have to be followed with great attention to specific detail.

How then does this relate to the use of market research? Moreover, what can agencies do to develop and organizational structure that maximizes the effective use of market and customer research?

This quiz and the supporting research (Deshpande, et al.) suggest that when managers feel they have greater flexibility, they may also believe they have more freedom in doing their jobs. This then may translate into a greater commitment to research activity, more involvement with the research process, and a greater likelihood of using the findings from research. Moreover, this feeling of freedom is reinforced when managers participate frequently in decisions about the adoption, modification, or deletion of products or services. With this decentralization of decision-making comes added responsibility that puts a burden on the managers' shoulders – a burden of eventual accountability for the decisions they made. Consequently, these managers will want as much corroborative and

supportive evidence as possible before making these decisions. This evidence is readily available in the form of market research.

Also relating to this issue of "evidence" is the extent of credibility regarding decisions by management. Through effective market research efforts, management at an agency can "externalize" the basis for making decisions versus relying on purely intuitive judgment and/or professional opinions. This broadening of the information base is particularly important in managers' efforts to persuade policy boards to approve particular actions. Since the policy boards provide community oversight to management, the higher the level of information obtained from the community through various research efforts the greater the credibility of management's recommendation.

This "quiz" clearly shows the impact the structure of an organization has on the use of research intelligence. Agencies should examine carefully the structure of their organization to detect any inhibitory efforts on research use. Notably, they should pay attention to those individual factors that appear to contribute most to an organization being either highly centralized or highly formalized – that is received high positive scores.

To the extent that an organization does or could use research, an alternative organization design – decentralized responsibility – which enhances research use might be considered. This is not to suggest that an agency must change its entire organizational structure simply to adapt to a research function or an occasional research project. Redesign may be temporary for a specific research project. For example, research in the organizational behavior literature suggests that certain organizational structure may simplify the initiation of new projects – for example, a decision to conduct a major research study – yet inhibit the implementation of those projects – that is, taking action based on the research – and vice versa. Thus, an organization that is highly centralized – that may simplify the decision to conduct a major research project – may have difficulty in carrying out the research. Thus, for the purposes of carrying out the research, a highly centralized agency may wish to decentralize decision-making temporarily in the marketing or planning area – at least during the implementation phase. Agencies can develop similar "switch rules" for other relevant organizational structure features.

To summarize, to enhance the efficient use of market research, agencies should allow managers to operate in reasonably flexible task environments. This flexibility would allow managers a generous amount of freedom to participate extensively in strategy decisions, coupled with accountability for demonstrated desired returns on investments. The responsibilities with which the agency entrusts the managers would include overseeing the collection and analysis of market research information on the products or services in their charge. This would permit these managers to be strongly involved in the research process, ensuring that the research information produced would be highly relevant to the decisions that need to be made. The result of this commitment to the market research activity would be a more effective use of research.



Sustaining A Market And Customer Research Function

A Roadmap for Increasing the Value of Market Research

TOOLBOX

- Beginning Your Journey: Factors Associated with Developing a Research Function
- Mapping The Way: Seventeen Propositions to Increase the Value of Market Research
- The Light at the End of the Tunnel: Integrating Marketing Research Into Transit Management

Getting From Here to There: Developing a Research Function

Developing and maintaining an effective market and customer research function are still relatively new ideas in transit management. Even transit agencies that regularly conduct market and customer research must overcome many obstacles before market and customer research is thoroughly integrated into transit decision-making at all levels of management. Because most managers in transit agencies have little experience with market and customer research, they frequently assume that launching a research project is a straightforward process – you ask questions, you get answers, and you present them to management for action.

However, as illustrated in the previous chapters, it is not that simple. Agreeing on a research purpose, identifying what matters and measuring it are difficult tasks. Further, managers frequently do not act in accord with research results, or if they do act, the actions are often not successful.

Many agencies that attempt a first effort at conducting a research project are dissatisfied with the experience. Sometimes, if they have never conducted research before or it has been many years since the last study, considerable monetary resources are committed to a single project. The research effort may be successful; yet, the agency does not conduct any other research for several more years. On the other hand, the research effort may not be completely successful. Management at the agency, faced with the allocation of scarce resources to many areas, may see little value to future research efforts.

Overall, few transit agencies interviewed as part of this project give their market research efforts high marks. Among the possible reasons for this dissatisfaction are that, for the most part, users and potential users of market and customer research:

- Do not understand what the essential purpose of market and customer research is,
- Do not understand how it relates to their needs, and
- Use research infrequently despite their having frequent, significant market information needs.

So what are the issues that create this situation? We have identified many causes throughout this handbook that affect the use of market and customer research. They are concerned with the:

- Extent of management commitment,
- Research design and focus,
- Technical quality of the research,
- Degree of trust in the research process and in those conducting the research, and
- Organizational structure and culture.

To sustain and grow a market and customer research function within an agency, transit agencies must understand these factors and the interrelationships of these factors. This chapter summarizes this handbook by presenting a “map” illustrating the relationships between the key factors. A synopsis of these relationships is presented in the form of propositions for increasing the effective use of market and customer research.

The “Map” to Success

There is a tension between the need to develop a sustained market and customer research function and the many factors that discourage effective information use and that diminish the value of market and customer research. Managing this tension is perhaps the single most important challenge facing agencies today as they seek to integrate market research into decision-making. To use market information throughout an agency, it is necessary to recognize and address the myriad of factors that influence how information is used.

The following model presents the interrelationships between the various factors that influence the effective use of market and customer research and the perceived value of market and customer research in helping the agency achieve a customer-orientation. This model has been adapted from one offered by Vincent Barabba and Gerald Zaltman in their book *Hearing the Voice of the Market: Competitive Advantage through Creative Use of Market Information*.^{lxii} By understanding these interrelationships, those wishing to develop and sustain a market and customer research function in their agency will have greater success in the long-term.

The model – Roadmap 26 (page 157)– illustrates how seventeen factors or propositions influence the effective use of market and customer research, and ultimately the perceived value of the market research function.

The Propositions: Hitting the Targets

This model leads to seventeen propositions that we suggest as potential areas that agencies should focus on to improve the value of market and customer research in their organizations. This greater value will come from more proactive thinking in decision-making and identifying new opportunities for ridership growth. In turn, greater value will lead to ongoing support and commitment from top management – the central ingredient to a sustained market and customer research function.

Proposition I: Establish an Objective and Independent Research Function

Establishing a research function that allows those responsible for planning and conducting the research to maintain their objectivity and independence is an important first step to increasing the value of market research. This is not to imply that agencies must establish a market research department. Indeed, there is a direct relationship between the establishment of a specialized, differentiated department and agency size. Rather, we are suggesting that no matter the agency size, when research is being conducted those involved in designing and managing the function are organized and charged in a way that ensures their independence and objectivity.

Several factors can contribute to loss of independence and objectivity within the research function. The more dependent the market research function is on individual departments or staff for ongoing support and budgets, the less objective research results will be perceived to be. Researchers who are dependent on internal clients for support may bias the research in support of the client's initial position. Moreover, they may be constrained in developing new methods and surfacing new issues. Finally, because each study may require a specific interest sponsor, other potential users of the research may distrust the results, particularly if they conflict with programs they wish to bring forward.

To overcome this, agencies should:

- Establish a separate market research function that has its own budget. The source of this budget should come from all departments that are likely to use any or all of the research produced. In this way, no single department will be viewed as the sole supporter of the market research function.
- Alternatively, the research function could receive its budget allocation from the agency's general fund. In this way, the function is not beholden to any departments, but to the agency as a whole.

Proposition II: Form Manager – Researcher Teams Early

The earlier researchers and managers begin working as a team on current and future issues, (1) the better the managers' understanding of the research process, and (2) the better the researchers' understanding of management issues and research needs.

Transit managers should:

- Involve researchers at the initial stages of the research effort.
- Make it clear what decisions are likely to result from the research and what alternatives are being considered.

- If an external firm is to be used, issue the research request and select a consultant before the final research design is cast in stone.
- Finally, involve all potential users of the research effort at this stage.

Proposition III: Build Staff Skills in Market Research Design and Analysis

The better trained the research staff is in market research design and analysis as well as in the basic issues of managerial decision-making and risk analysis, the more managers will be open to diverse sources of information and methodologies.

- Look for these skills when hiring research staff.
- While basic training in research methodologies is essential, higher level thinking skills, experience in leading meetings and encouraging participation and broad-based experience with a variety of techniques and methodologies are equally important.
- Ongoing training of staff should be used to enhance the development of these higher-level skills.

Proposition IV: Increase Managers' Understanding of the Research Process

The greater the managers' understanding of the research process – what it can and cannot do and when it is and is not necessary to use – the greater the level of trust between managers and researchers. In addition, lack of understanding lessens the perceived value of formal research as a learning tool for the agency.

- Give managers the opportunity to learn about the research process through continuing education programs or through internal training.
- Encourage internal research staff or external consultants to take the time to explain the research process and the specific aspects of a research project at a level of detail necessary to foster understanding.
- Ask researchers to talk in your language and develop an understanding of the constraints under which the research user operates.
- Above all, do not be afraid to ask questions and seek answers.

Proposition V: Increase Researchers' Understanding of Managerial Issues

The more knowledgeable researchers are about managers' issues and their specific tasks and decision constraints, the greater the level of trust between managers and researchers. Moreover, the greater the familiarity among researchers about the circumstances surrounding the approach of a research project, the greater the perceived value of the information made available to managers.

- Give the researcher feedback about the use / nonuse of the research. This will enhance the researcher's knowledge of the agency and will improve the quality of future research efforts. This is especially important if the agency expects to have a continuing relationship with the outside firm, or if the research provider is an internal department.

Proposition VI: Encourage Openness to Diverse Information and Methodologies

More openness by managers and researchers to diverse sources of information and methodologies leads to a greater ability to (1) reconcile diverse points of view, (2) identify critical information needs and avoid unnecessary research, and (3) develop novel syntheses of diverse information.

- Challenge the idea that a given methodology is the only one appropriate for a given task.
- Be willing to see alternative viewpoints about an issue.
- Foster an atmosphere that encourages an open assessment of the different positions when alternative viewpoints are brought forward.
- Discourage an “entirely right” or “entirely wrong” mentality with respect to different positions. This will encourage creative syntheses that add even more value to available information.

Proposition VII: Increase Trust between Researchers and Managers

The greater the level of personal trust managers have in researchers, (1) the greater the use of research, and (2) the more open managers are to new and perhaps surprising research results. Trust has been found to influence the perceived quality of user-researcher interactions, the level of researcher involvement, the level of user commitment to the relationship, and the level of market research use.

To increase the level of trust between researchers and managers:

- Researchers and managers must work together to enhance the use of information in decision-making.
- The organization must foster an atmosphere where researchers and managers understand, respect, and to some extent adapt to each other’s frame of reference and needs.
- Researchers must understand the comfort zones of the users of the research and use effective communications when results fall outside the comfort zone.

Proposition VIII: Develop Novel Insights from Varied Information Sources

The greater the ability to develop novel insights from varied information sources, the greater the incidence of ideas that give an agency a unique advantage.

- Encourage the use of alternative information sources and different methods for gathering data.
- Use outside expertise as needed.
- Be willing to give greater emphasis and credence to information that is abstract and yet possibly more reliable.
- Include the researcher in the decision-making process, allowing them to provide an objective view of research results and their implications for the decision and to represent the “voice of the market” throughout all subsequent discussions.

Proposition IX: Identify Critical Information to Reduce Unnecessary Research

One of the most significant services a market research function can provide is to help managers identify and challenge their own assumptions and examine alternative perspectives on what they know. This process highlights important areas where knowledge is lacking and where market or customer research will have greater value. Moreover, it minimizes the risk of conducting unnecessary research that is not relevant and hence has little value.

Researchers can help managers identify critical information to avoid unnecessary research by:

- Clearly identifying what is essential to know, what is presently known or not known, and what is and is not already known and available elsewhere.
- Acting as a knowledge development expert who helps managers identify critical information requirements rather than acting primarily as a collector of primary data.
- Being willing to recommend **not** conducting research when it will have little value.

Proposition X: Reconcile Diverse Viewpoints

The greater the ability to reconcile diverse viewpoints, the higher the incidence (1) of successful research efforts and (2) of identifying opportunities for ridership growth.

- Involve researchers and users of the information early in the research design process.
- Encourage a process by which all alternative points of view are discussed and criteria are established for setting priorities for research information needs.

Proposition XI: Increase Managers' Openness to New and Surprising Results

While it is desirable to challenge core assumptions, few managers do, mainly because it simply doesn't occur to them. Frequently the decision time frame is too short to permit adequate exploration of alternative viewpoints. Just as often, there are too many assumptions to tackle at one time. As the level of trust between managers and researchers increases, managers will be increasingly open to new and surprising results. The research function has an opportunity to assist in this area by providing leadership in challenging thinking about assumptions and decisions.

Managers can increase their openness to new and surprising results by:

- Seeking the obvious but doing everything in their power to challenge and even ridicule it.
- Questioning all constraints. The most limiting constraints are usually imposed not by the problem but by the mindset of the problem solver.
- Challenging as many assumptions about the problem as possible. Remember what seems self-evident may not always be evident to others.
- Questioning the scope or definition of a problem. Frequently, what is omitted from the statement of a problem is as critical as what is included.
- Questioning whether a problem is to be "solved," "resolved," or "dissolved."

- Questioning logic. Being logical and being right are not always the same. The more logical a solution to a complex problem sounds, the more it deserves to be challenged.^{lxiii}

These guidelines for managers can help researchers:

- Present a broader array of ideas and understandings for possible use by managers.
- Help reduce the likelihood of acting on an incorrect assumption or one that may simply not yield the best decision.

Proposition XII: Increase Use of Market Research throughout the Agency

Research must be used to be of value. Despite this somewhat obvious truism, much research is not used or used effectively. Effectively demonstrating the high incidence of successful past efforts will increase the level of future research use. This can be done by:

- Publicizing successes through internal memoranda.
- Discussing market and customer research findings and their implications at planning and/or staff meetings.
- Whenever possible, arranging for a presentation or briefing – either formal or informal – for senior management and the board.

Proposition XIII: Use Research to Identify Opportunities for Ridership Growth

The greater the incidence of ideas that identify opportunities for ridership growth, the greater the incidence of a thinking-to-lead – that is, proactive thinking – compared with a thinking-to-follow – that is, reactive thinking – management planning process.

- Make sure the research focuses on decisions that are to be made and /or alternatives that are being considered.
- Avoid gathering information for information's sake.

Proposition XIV: Make Decisions Based on Research

The higher the incidence of successful decisions based on research, the greater the value of future research. The failure-of-success syndrome often occurs when one tries to apply a successful previous effort to a new situation without considering changes in the situation.

- Do not rely on thinking and planning processes that worked well in the past. Recognize that past thinking and actions, although successful, may need to be altered to fit the current situation.
- Examine carefully their appropriateness to current or anticipated situations. As the agency conducts research, take time to let others in the organization know about the results of the research and how it was used.

- Constantly evaluate the effectiveness of the research function and the way in which the agency learns and uses research to aid in decision-making. Having a better understanding of the research function and its relationship to decision-making and making improvements in the organization of the research function as the function becomes more integrated with decision-making will ensure its long term success as well as increase its future value to the organization.

Proposition XV: Conduct Relevant, Timely, Accurate, and Cost-Effective Research

All decisions involve uncertainty – both in the information on which they are based and in the forecasts of the consequences. We have emphasized throughout this handbook that successful market and customer research is decision-oriented. This means, first, that to have value, market and customer research should be undertaken only when the results will reduce uncertainty and influence decisions. Indeed, there is little point to research if the decision-maker cannot alter the decision or alternatives based on the information. More specifically, to have value, market and customer research will make the greatest contribution when it is relevant to current or anticipated decisions, timely, cost-effective, and accurate.

Throughout the handbook, the emphasis has been on conducting research that is focused on decisions. Research conducted to satisfy curiosity or confirm the wisdom of previous decisions has little value. Relevance comes through the support of strategic and tactical planning activities – by anticipating the kinds of information that will be required to assist in decisions.

- Undertake market and customer research as new circumstances arise and/or decision alternatives become more specific.
- Focus constantly on decisions throughout the planning and implementation of these projects.

Decisions usually are constrained by time and must be made according to a specified schedule, using whatever information is available. While the timing of decisions often is contingent on the research results, more often than not decision dates must be achieved regardless of the availability of information at that point. While partial information at decision-making time is obviously of greater value than complete information later, this property of market and customer research has several important implications that can affect the overall value of the information.

- Design the research so that partial results are available at various times. All research is subject to Murphy's Law – whatever can go wrong, will, and at the worst possible time – which may impede the achievement of the best-intentioned schedule and delay the final results. Obtaining partial results throughout the course of the study is particularly easy with the new technology available in telephone interviewing. For on-board or mail surveys, procedures for ongoing data entry and validation will need to be established.
- Think about conducting research ahead of foreseeable decisions by thinking about the continuum of information as described in the Wheel of Research (described in Chapter 3) rather than a single research result at one point in time.

Cost-efficient research provides the maximum amount and quality of information with the minimum expenditure of time and money. In some cases, research is not justifiable although it can clearly contribute to a decision. In such cases, the costs of a minimally acceptable study exceed the foreseeable benefits of increased ridership, improved customer satisfaction, or other criterion.

- Use the criteria listed on Roadmap 2 to help estimate the cost-efficiency and hence the value of research information for each decision.

- Use research designs and research procedures that give good results with high probability, rather than approaches that are more sophisticated. These latter approaches might give excellent results if they are correct, but may be very inaccurate if some of their assumptions are not met.

Requirements for timeliness, efficiency, and relevance should not compromise the accuracy of market and customer research. Several strategies have been discussed throughout the handbook that will help ensure accuracy. However, despite careful research design it is inevitable that biases will arise due to question wording or interpretation, the sampling plan, or other elements of the research design.

- Use more than one approach to address a research problem. If several approaches with different kinds of biases yield similar conclusions, the accuracy of the research will be enhanced.
- Make the research as objective as possible. Ideally, this means the careful adherence to scientific methods. Do not slant the design of the research to achieve predetermined results.

Since researchers and their results are continually subject to the pressures of the organization, it is unrealistic to pretend that bias and distortion are not introduced – consciously or unconsciously. Awareness of the possibilities is usually the best defense.

Proposition XVI: Use Quality Thinking Before, During, and After Data Collection

Much of the focus in market and customer research has been on developing technologies for data acquisition and processing. Procedures have been developed to eliminate or at least isolate human bias by establishing “objective” guidelines for research design, sampling procedures, the construction and administration of questionnaires, reliance on formal analytical procedures, etc. This has occurred largely because of the separation of the research function from decision-makers.

In contrast, less has been done on the process of using information and the quality of thinking. However, the quality of thinking by the researcher about an issue before data collection is a major determinant of the quality of thinking after the data have been collected.

Managers can improve the quality of thinking by researchers before, during, and after data collection and by that increase the value of market research by:

- Discussing their expectations, ideas, comfort zones, etc. with the researchers and others prior to making decisions about research design, strategy, etc.
- Understanding the importance of the information that is being gathered. A wide array of possible actions and better information about those possibilities are obtained when managers explicitly consider: (a) the importance of the questions that are being asked, (b) the question's utility in developing and action, and (c) what else is needed in choosing or implementing a decision for a given question to be useful.

On the other hand, researchers can improve the quality of their thinking before, during, and after data collection by:

- Simulating the use of information before doing fieldwork. This prompts thinking about the actual use of information and leads to changes in research methods and instruments that will produce more usable results.

- Thinking about specific empirical outcomes well in advance of actual findings. Managers and research are then better prepared to interpret results and can do so more quickly, perhaps shortening the decision time.
- Enumerating alternative actions or decisions before the design of a questionnaire. The researcher should identify the questions related to various actions and the kinds of analyses that will be done with the final data. Managers can then indicate where the data may be insufficient and/or excessive for evaluating these actions.
- Identifying early in the process where uncertainty is likely to remain, and the cost of that uncertainty. Managers and researchers are then better prepared to determine the value of the proposed research as well as the value of additional research to further reduce uncertainty.

Proposition XVII: Act, Don't React

Thinking-to-lead involves sensing changes in the market or environment in their early stages and developing creative responses. Thinking-to-lead represents a proactive stance. Conversely thinking-to-follow involves learning how to respond quickly and effectively to important changes in their advanced stages. Thinking-to-follow is a more reactive stance to the marketplace. Both kinds of thinking are necessary and important. However, the thinking-to-follow posture reflects an absence of commitment to being market and customer-oriented and a lack of commitment to the use of marketing information. Moreover, as riders and potential riders become increasingly demanding of public transportation services and as more options for travel become available, a thinking-to-follow posture will lead to slow and or decreased ridership.

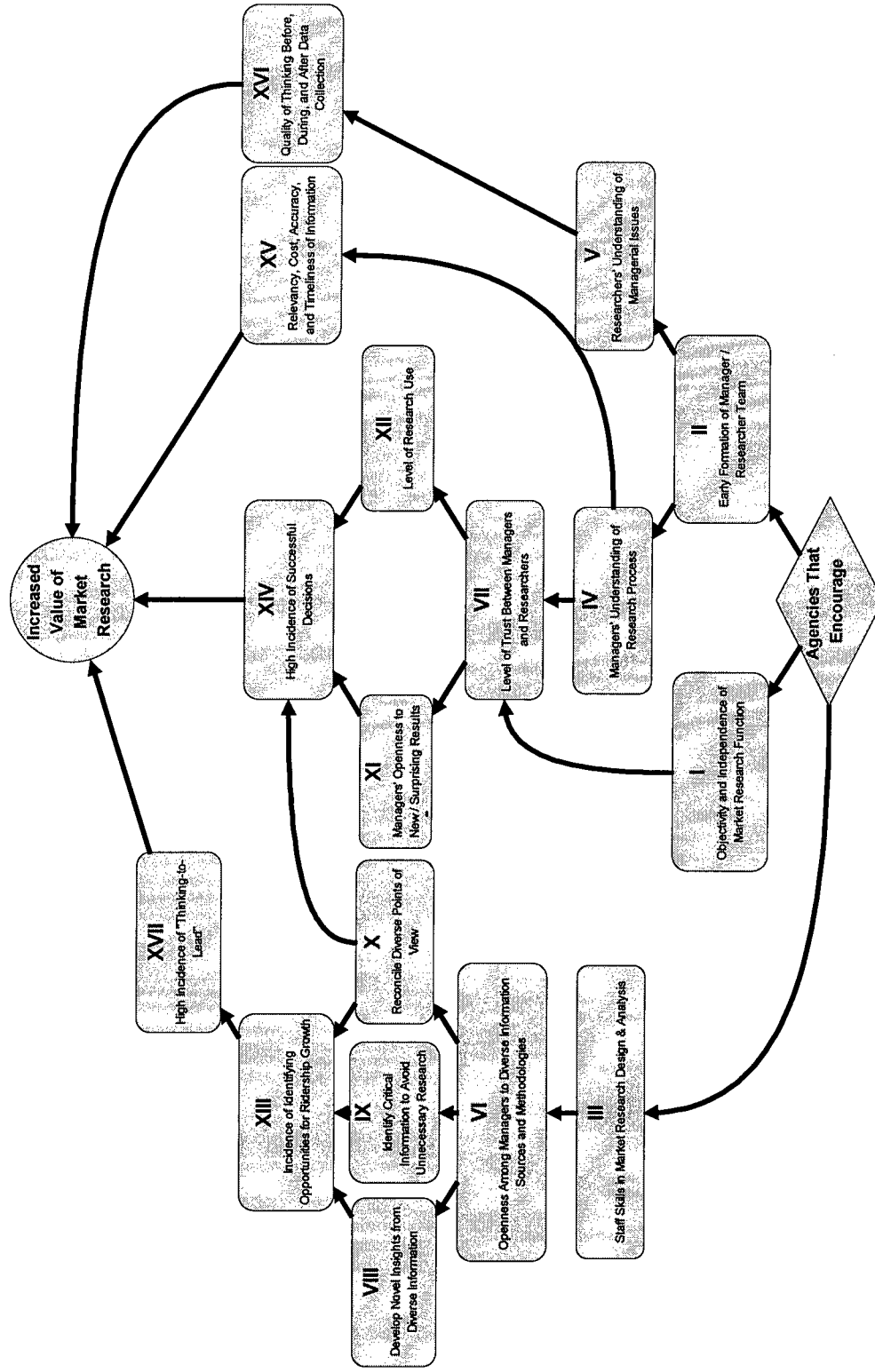
To develop a thinking-to-lead stance, agencies should consider:

- Investing in training on how to surface assumptions, formulate issues, and interpret stations in order to make effective use of new information systems and technologies.
- Developing values, cultural norms, and attitudes in the organization that are compatible with being proactive. Reward those who try to state their needs in terms of researchable questions and those who are forward-looking and oriented toward strategic thinking. Be open politically to new knowledge. Place greater value on internal resources to gather, disseminate, and respond to market information. Hire specialists when needed.
- Decentralizing and deformatizing agencies – at least temporarily using special teams and/or committees – to increase the speed of decision-making and the willingness to adopt new innovations. Identify the bottlenecks in translating needs into research questions.
- Taking a different view of how researchers and managers relate to each other. Expect researchers to keep managers informed at all times and to be involved in the decision-making process at particular times. Provide researchers with tools and training to take on this different role.
- Allowing adequate time for market research to be conducted that is relevant, timely, and accurate. Assess user needs on a regular basis rather than simply at the beginning of a project. Communicate changes in needs to researchers in time for them modify the research. Allow users enough time to derive action implications from the research.



ROADMAP 26

A ROADMAP TO INCREASE THE VALUE OF MARKET RESEARCH



Destination: Integrating Market Research Into Transit Management

To conclude, a research function cannot be built overnight. Agencies that have successful market research functions are the result of carefully cultivated attitudes, commitments, and management process that have accrued slowly and steadily over time. To start the process of developing a research function, the following simple steps are suggested.

- **Foster an environment that is conducive to conducting market and customer research.** This means that the agency must allow time for reflection and analysis, for thinking about strategic plans, dissecting customer needs, assessing current work systems, and developing new products and services. Top management must explicitly free up employees' time for the process of research. Training in brainstorming, problem solving, evaluating experiments and other core research skills is essential.
- **Open boundaries and stimulate the exchange of ideas.** Boundaries inhibit the flow of information and the use of market and customer research. They keep individuals and groups isolated and they reinforce preconceptions. Boundaries can be opened with conferences, meetings, and project teams that link the company and its customers, and ensure a fresh flow of ideas and the chance to consider competing perspectives.
- **Before starting up a new function, study and evaluate what you are now.** One must be fully aware of and appreciate current assumptions about management, organization, and the use of information to grasp what is presently being done well and what the agency might improve or change.
- **Create the context and identify the crucial business challenges.** Senior management must establish the broader framework to guide change as strategic directions for the agency and a "vision" of how it will operate in the future.
- **Consider cultural factors carefully** in choosing and carrying out any strategy.
- **Make changes in small steps.** Large-scale change requires that many initiatives be put into place in a carefully designed and integrated sequence. Such a plan may be doomed to failure from the start. Rather, changing an organization through a series of modest, focused, and specific changes will allow people to experience success. The result is still likely to be large-scale change.
- **Institutionalize the changes that work** – and discard the rest. All too often, organizations will attempt a change. When one aspect of the change does not work, the tendency is to discard the entire program. Rather, as management gains experience, it can take steps to institutionalize the practices and technologies that contribute most to learning and build those into the infrastructure of the company.
- **Periodically review progress and reformulate strategy.** Results-driven improvement is an empirical process in which managers use the experience of each phase as data for shaping the next phase of change. Fresh insights flood in from early experiments – how quickly project teams can make gains, what kind of support they need, what changes in work methods can be implemented quickly, what obstacles must be addressed at higher levels of the organization. Armed with this information, senior management can refine strategies and timetables, and in consultation with others in the agency carve out the next round of strategies to incorporate learning into the organization as confidence and momentum grow.



Calgary Transit

Calgary, Alberta

Compared to You

Calgary Transit, a unit of the Calgary Transportation Department, is part of the municipal government of the City of Calgary, Alberta. The City Council sets policy for the 576-bus, 13-shuttle, and 85-car light rail transit (LRT) system. The staff of 1,684 serves a population of 717,000. Calgary Transit's service demand included 45 million bus boardings and 33 million C-Train (LRT) boardings in 1993.

Fare revenues comprise 47 percent of Calgary Transit operating costs. A long tradition of strong local and provincial support is evidenced by the City's responsibility, with local taxes providing 43 percent of the budget and provincial grants, 8 percent. Advertising provides 2 percent of the budget; federal funding is minimal.

All three C-Train lines (South, Northeast and Northwest) serve Calgary's central business district (CBD). Two out of five (40 percent) work trips to downtown are on Calgary Transit. Eleven park-and-ride lots at C-Train stations provide parking for 6,800 vehicles. Eleven smaller bus service park-and-ride lots offer parking for 260 vehicles.

During Calgary's economic and population boom of the late 1970's and early 1980's, the City restricted the construction of new parking, limiting parking availability and increasing prices in the CBD. Quality public transit service increased with the introduction of the South line in 1981 and the Northeast line in 1985. With the decline of petroleum prices during the mid-1980's, local economies and tax revenues plummeted. The downtown employment focus declined. Vacant parcels previously targeted for development are now used as surface parking lots. The additional parking supply resulted in lower rates, and driving is again more attractive.

Their Research Program: Big Bang for the Buck

The constraints on local and provincial funding programs have affected Calgary Transit and provided an impetus for a very focused research effort centering on nonriders as well as riders. A Market Research Committee of operations, maintenance, transit studies, marketing, service planning and community relations staff helps define the surveys.

With an annual budget of \$85,000 (for external costs), Calgary Transit engages in **omnibus surveys**, an annual **customer satisfaction survey**, a tri-annual **work-travel census**, and other **"quick response" studies** as needed. Conducted by private research firms for several clients at once, the cost-effective **omnibus surveys** include questions about Calgary Transit's market share, reasons people do not use transit, advertising effectiveness, and public opinion

about the value of transit service to the community. Calgary Transit's 1993 expense for its omnibus survey participation was \$2,500.

The **annual customer satisfaction survey** identifies travel patterns and transit usage, rider preferences and service performance ratings. Riders' perceptions and expectations, as well as their use of Teleride and printed riding information, are monitored each year. The survey cost is \$10,000.

About 25 percent of the research budget is set aside for immediate research needs that arise during the year. Three issues required **quick response surveys** in 1993: customers' perceptions of personal security at rail stations and park-and-ride lots; fare evasion; and bus seating.

Evening riders felt isolated on station platforms, and the quick-response security survey indicated that *any* kind of official presence would help overcome passengers' personal safety concerns. With these findings, Calgary Transit moved the cleaning schedule at stations to evenings, rather than after the stations closed for the night. Thus, uniformed staff was present and visible in the later evening hours. In addition, spare-board drivers and safety/training personnel were assigned to patrol the stations and parking lots. City police officers also carried out a security audit of LRT stations and parking lots, providing insights for improvements.

Evasion of the C-Train honor fare system was thought to be around one percent, according to the results of random spot-checks by uniformed fare agents. However, a comparison of passenger data with revenues indicated that the rate of evasion may be higher. Accordingly, a quick-response survey was implemented with non-uniformed interviewers asking passengers how much they had paid and requesting proof of payment. A warning rather than a \$35 citation was issued to respondents who had not paid a fare. The findings showed an evasion rate of 7.5 percent. At some stations, the estimated rate was as high as 14 percent. With these results, Calgary Transit increased the citation from \$35 to \$150. Follow-up surveys showed that the fare evasion rate declined from 7.5 percent to 1.5 percent.

With a new order of buses, Calgary Transit specified seats that were different from those in the current fleet. Through the customer feedback process, it was found that most riders did not like the new seat design. A more formal, quick-response survey of customers helped to determine the extent and nature of concerns regarding the new seating. Based on the results of the survey, the old seat design was restored.

In addition to the quick-response surveys, Calgary Transit has also used panel discussions with all nonriders to develop a transit demand model and worked with the Canadian Urban Transit Association to identify changing urban demographics and their impacts on transit.

Two key areas are responsible for the growth and success of Calgary Transit's market research efforts:

- 1) A philosophy that market research goes from the macro to the micro levels; and
- 2) The agency's open-minded desire to apply research or change research procedures as needed.

The agency's basic philosophy recognizes that while its market research tends to focus on particular issues, research can involve a variety of activities and issues. Thus, larger (macro)

studies of riders and nonriders can lead to smaller, specifically focused (micro) studies for more detailed information.

Because the research findings have major relevance to the success of Calgary Transit in meeting its policy objectives, the research is used by top management and throughout the organization. Transit staff acts to remedy situations of concern to customers and the general transportation market.

"Market research provides a vital link between the identification of particular needs and the decisions that respond to these needs. We've tailored our research so we can use it to respond to current and future issues that affect service. Whether it is reviewing new seating for buses or assessing advertising strategies, we recognize the importance of providing data that supports responsive decision-making."

Neil McKendrick, Coordinator of Transit Studies.

The openness about doing things differently includes adding new research, as well as refining and changing the current studies and procedures. Calgary Transit is considering the development of a new database of current riders' demographic features and origin-destination patterns. The database would be continuously updated and would record responses to questions of preference, helping to keep current riders as customers and encourage nonriders to use transit.

A more detailed integration of market research information with transit planning is a goal under consideration for the near future. Twenty-four-hour data regarding travel mode shares with emphasis on wider peak periods would be gathered and included in the Transportation Department's long-range travel demand forecasting process.

One aspect of Calgary Transit's basic approach to market research that could apply to other operators is the recognition that market research should take place from macro to micro levels, in a hierarchy as follows:

- Examine community transportation needs and priorities.
- Determine how the public views transit.
- Identify system-wide issues regarding future service development.
- Given limited resources, determine service and other priorities.
- Study narrower issues (such as passenger amenities and seating).

"There is a broad hierarchy of issues facing public transportation systems throughout North America, ranging from changing demographics and their impacts on travel to focused problem areas that require short-term actions and research efforts to guide the decisions and responses to be made."

John Hubbell, Superintendent of Service Planning and Customer Relations.

Using Calgary Transit's overall, general-to-specific study approach; the contributions to the market research function by staff members from all organizational levels; and the flexibility afforded by budgeting for quick-response surveys, many transit systems could take the initiative in serving the changing needs of their communities.



Capital Metro

Austin, Texas

Compared to You

Located in the Austin, Texas metropolitan area, Capital Metro provides bus service to a population of 536,000. Estimated ridership in 1994 equaled 28 million – and has been increasing at an annual rate of 3 to 4 percent during the past few years.

Their Research Program: Focused on Specific and Immediate Issues

While ridership has grown over the past few years, following improvements in the overall economy of the area since the energy-related downturn of the late 1980's, Capital Metro continues to carry out research efforts which include rider and nonrider profiles and focus on both current customers *and* employees. Carried out by the Communications Department, and supervised by a Marketing Supervisor responsible for surveys and other research work, market research at Capital Metro uses a mix of tops-down and bottoms-up approaches when identifying possible market research activities. Past research efforts at Capital Metro have focused on specific and immediate issues facing the agency, such as vehicle acquisition, public information, and transfer policies.

- **Focus Groups:** Capital Metro has used focus groups to help evaluate potential features of new vehicles and develop a formal survey of riders to obtain customer feedback regarding new vehicles considered for acquisition by the agency.
- **Customer Review:** Before proceeding with the detailed development of converting individual route schedules into a comprehensive schedule "book," a draft was reviewed by a group of customers who indicated support for the idea.
- **Employee Review:** Capital Metro recognizes that bus operators are part of the "client" base. When considering possible changes regarding transfer policies, the agency presented the changes to a group of operators. The group offered comprehensive suggestions to make the system user-friendlier, suggestions that were incorporated into the program.

Capital Metro has integrated their research efforts into their management planning efforts by allowing the research conducted to provide management with decision tools and resources based on real-world opinions and attitudes toward service-related issues.



Cleveland RTA

Greater Cleveland, Ohio

Compared to You

Uniting the City of Cleveland's Transit System and a group of smaller public and private transit systems in Cuyahoga County, the Greater Cleveland Regional Transit Authority (GCRTA) was created in 1974 to stabilize and improve a deteriorating Cleveland area transit system. Currently, the GCRTA is a large, multi-modal transportation system serving the metropolitan Cleveland, Ohio area. Over 61 million passengers rode the system's fixed route bus, para-transit and rail services in 1994.

A public agency, the GCRTA is governed by a ten-member board comprised of elected and appointed officials representing the service areas. The agency's 1994 annual budget was \$175 million. Funding is provided by an area sales and use tax with additional public funding by the state and federal governments. Approximately 25 percent of operating cost is recovered from the fare box.

Following the creation of the GCRTA, ridership increased – reaching a peak of 130 million in 1980. This high water mark was followed by a period of serious decline – in part due to problems many other transit agencies were currently dealing with, including the shift of jobs to dispersed, suburban locations – yet others were of its own making. The agency's credibility and service quality suffered through a period of well-publicized mismanagement and scandal, finally culminating with the 1987 resignation of several board members and the general manager.

"It was terrible, absolutely terrible, sloppy. People didn't know what they were doing. They had no idea what customer service, or responsiveness or responsibility meant. It was unbelievable."

Ronald Tober, General Manager

A new management team was brought in and given the daunting task of rebuilding the public's faith in and use of the GCRTA. The management team set to work to rebuild the system, identifying the key to rebirth as a need to get back in touch with customers. In addition to instituting a total quality program, with "delighting the customer" as its philosophy, reorganization of the agency to a customer quality driven structure, long range plan development and conduct of a comprehensive operational analysis, the GCRTA uses market research – and its newly created market research function, under the direction of the GCRTA's Assistant General Manager of Marketing and Development, to provide the keystone in

evaluating customer and potential customer attitudes toward and expectations from the GCRTA.

Their Research Program: Key to a Customer-Driven Organization

Over the past five years, the agency has developed a consistent tracking database of market information that is incorporated into the decision-making strategies of its management. Key studies used by the GCRTA include:

- **On-Board Passenger Survey:** The GCRTA uses this annual self-administered questionnaire to measure demographics, travel behavior, attitudes and importance of various attributes among two to three thousand riders.
- **Nonrider / Infrequent Rider Survey:** An annual survey conducted throughout the agency's service area among 600 nonriders and infrequent riders is used to track potential market opportunities as well as overall citizen attitudes toward the system.
- **Passenger Origin / Destination Survey:** Approximately every three years, GCRTA conducts an on-board survey of two to three thousand completed questionnaires to focus on the travel patterns of existing riders. The instrument includes basic demographic question sets and detailed inquiries about origins, destinations, transfers, and trip purpose.
- **Special Purpose Studies:** The GCRTA routinely conducts studies related to specific service and marketing issues. During the last year, a series of focus groups were conducted on the following issues:
 - **Gateway Service Study:** Focus groups were conducted with individuals who had purchased tickets to Cleveland Indian games to identify the types of GCRTA services that might be most attractive to patrons of Cleveland's new Gateway Jacobs Field games.
 - **Employer Pass Sales Study:** In its attempt to maintain existing riders through encouraging regular ridership, the GCRTA has launched an effort to encourage increased usage of monthly passes. As part of this effort, the agency conducted a series of focus groups with major employer decision-makers as to their attitudes towards acting as distributors for various fare media and what they would like to see in the program to make it worth their participation.
 - **Suburban Relocation Survey:** When two major downtown Cleveland employers were planning moves to suburban locations, the GCRTA surveyed the firm's employees – based on lists provided by each of the firms – to determine if service modifications could be designed to serve their needs.
 - **"Time Sensitive" Public Opinion Tracking Survey:** Designed to overcome a limitation with current surveys which reflect opinions about the agency gathered during a very limited slice of time, making them vulnerable to short term impact events that may distort overall findings – such as negative news stories printed during the time of the survey – the GCRTA's new tracking study will be a random telephone survey in which a small number of randomly selected individuals are

surveyed weekly. The survey will track basic attitudes of respondents towards GCRTA on an ongoing basis, and will enable the agency to see the impact of isolated events on overall attitudes towards the agency, as well as tracking seasonal factors.

Market research and the TQ philosophy are integral parts of the decision process at GCRTA. Research findings are used to identify areas TQ teams need to work on, measure the effectiveness of the programs, and to help develop budgets.

Perhaps the best example of the GCRTA's successful use of market research is the recent construction of the Gateway Walkway. The City of Cleveland has recently begun a major redevelopment of its downtown area, an anchor to this effort is the development of the Gateway Sports and Entertainment Complex which opened in 1994. The \$300 million complex includes the 41,000 seat Jacobs Field, the new home of the Cleveland Indians, and the 21,000 seat Gund Arena, home of the city's basketball and hockey teams as well as more than 200 special events annually – from circuses to rock concerts. Recognizing the opportunity to both increase the usage of the system by existing riders in recreational trips to the facility and to reach a new market of nonriders attending Gateway special events, the GCRTA made construction of the Gateway Walkway, a quarter mile long glass enclosed, climate-controlled pedestrian walkway linking the Complex with the GCRTA's service hub at Tower City Center a top priority.

Recognizing, based on their database of research, that safety and security were two of the biggest concerns among RTA riders, the GCRTA recruited focus groups of potential Complex patrons to help define the types of service the riders and potential riders would like to see, as well as how they felt about security issues. Participants, recruited from Cleveland Indian ticket holders, indicated that there was indeed a concern about security in service to the facility that ranked second only to convenience in importance.

Based on these results, the GCRTA instituted several measures in the newly constructed Walkway that directly targeted the safety concerns of their customers, including:

- Fifteen press-to-talk emergency call boxes with direct access to transit police;
- Video cameras monitored by transit police, providing real time and video-taped surveillance of all walkway activity – focusing on call boxes when activated;
- High levels of lighting;
- Expansive windows;
- Wall murals of public art; and
- Emergency exits monitored by cameras and secured with call boxes.

The results of the focus groups also influenced service planning, causing the GCRTA to increase the frequency of trains and buses leaving evening events, beef up security at suburban park-and-rides and develop a network of "Gateway Flyer" express bus services to regional park-and-rides to cut down on waits and transfers.

The focus groups revealed that the concerns about security were serious enough that the authority's marketing team felt the issue would have to be addressed head on. This approach

was somewhat different than the traditional thinking that bringing up security issues might increase perceptions of security problems. The direct approach concepts were tested in focus group sessions before materials were actually published, and focus groups conducted following the GCRTA efforts showed that participants felt taking "RTA bus service would be safer than driving."

Gateway service success became a highlight of 1994 for the GCRTA. On its first day of operation on April 4, 1994 – Opening Day for the Ballpark – the authority's Gateway services carried 18,000 people or 44 percent of the 41,450 attending the Indian's Home Opener. The ridership was double the projections for the service. Overall, the year's total ridership to Gateway events was 830,000 people. Had that not been the year of the Major League baseball strike, it is estimated the system would have carried over one million people to Gateway during the year.

"We did this one by the book; using and believing in our research, applying a team approach and designing a service to give the public what they asked for – it worked."

GCRTA Director of Marketing



Long Island Railroad

New York, New York

Compared to You

The Long Island Railroad is the nation's busiest and oldest commuter railroad. Serving millions of New Yorkers over its 161-year history, the railroad has enjoyed a "love-hate" relationship with its riders. The hate portion of this relationship was winning out prior to 1990, due in part to many of the same difficulties besetting many mass transportation agencies at the time, including declining ridership, rising costs, poor employee morale, decreasing productivity, and a deteriorating public image.

"It used to take real courage to admit in public that you worked for the Long Island."

Senior LIRR official.

However, the Long Island had other problems all its own. Not only was there a significant shift of jobs from the urban core served by the railroad to suburban locations – widely dispersed areas difficult for a conventionally structured commuter rail operation to serve – as well as an economic downturn, but, due to old and poorly maintained equipment and operating plant breakdowns, delays were frequent, maintenance costs were rising and passenger dissatisfaction was quickly turning to anger.

Not only did the railroad's management face a crisis, it faced an opportunity. Improved funding and investment in the plant provided a foundation to attack the overall service problems bedeviling Long Island's passengers. Prior to 1990, the Long Island's "parent" agency, New York's Metropolitan Transportation Authority (MTA), had begun a major effort to restructure and improve service throughout the New York metropolitan area. The MTA's program involved heavy capital investment, providing for a more stable funding base, an umbrella planning function, and a new customer-driven philosophy.

The railroad's top management took the approach that it was necessary to stop the ridership declines of the past and to instill a new organizational philosophy to reverse the decline and improve service quality. Key to this effort was the belief that the Long Island wasn't just a railroad, but was primarily a service provider. To ensure that this shift would occur, and the philosophy would be maintained, the railroad decided to formalize the program at the highest management level, creating the Vice President of Total Quality Management. The Vice President, reporting directly to the President, serves as a senior facilitator and coordinator for implementing a TQM program for all divisions of the railroad.

A customized TQM program, based on the Harvard program "Achieving Breakthrough Service," was developed based on the concept that in a successful organization front-line workers and their customers need to be the center of management concern. Only through the enthusiasm and ability of front-line employees as presented every day can the railroad's customers receive the kind of service quality they expect. At the heart of the Long Island's program, called "Breakthrough Customer Service Program," is the belief that the key to achieving this quality of service is that front-line employees must have all the training and support necessary to deliver those services. It is the interaction between the front-line personnel and the customer that is perhaps the most important element.

Their Research Program: An Integrated Approach to Railroad Operations

To this new process was added another element – market research. Although, the LIRR has had a significant market research program in place for a number of years, most managers only began to integrate the research findings into all aspects of the railroad's operations about five years ago. Following are descriptions of several of the studies the LIRR has designed to provide information about customers and potential customers.

- **The Market Share Tracking Study:** The LIRR conducts this random household telephone study twice a year to track the market share and attitudes of both customers and potential customers. The study measures customer and noncustomer demographics, system usage patterns and nonsystem usage patterns, advertising awareness, and understanding of communications initiatives. The study is key to the railroad's target marketing program. Its twice-yearly frequency, as well as its five-year tracking history provide a valuable measuring device of the effectiveness of a number of initiatives the railroad has undertaken over time.
- **The Customer Satisfaction Survey:** The agency's rider report card is used by virtually all major divisions to assess their progress in meeting customer needs. Additionally, it serves as an early warning system in identifying negative trends before they become problems. The LIRR conducts the on-board, self-administered study annually to measure:
 - Customer attitude readings,
 - System performance perceptions,
 - Customer perceptions of progress,
 - Emerging areas of customer concerns,
 - Customer priorities for improvements,
 - Customer and noncustomer demographics, and
 - System usage patterns.
- **LIRR Passenger Count Program:** The railroad's origin and destination tracking survey is conducted annually with variations in emphasis. For example, one year the

emphasis might be on peak ridership, while in another year it may be off-peak. The passenger count program is designed to provide a systemwide geographically detailed picture of LIRR customer travel patterns by system, branch, station and train.

These ongoing research programs are key to a number of Long Island's planning and marketing efforts including:

- **Service / Operations Planning** efforts including train scheduling, equipment deployment and number of cars per train, train routing and the identification of LIRR branches for possible service configuration.
- **Investment Planning** for Future Capital Initiatives.
- **Marketing Initiatives** including targeting services and promotions to specific user groups and to support strategy development to maximize revenues.

In addition to the major tracking studies conducted by the railroad, the agency has conducted a series of special purpose research projects to further refine understanding of customers and identify market opportunities. Many of these studies are designed to explore more fully trends or patterns identified in the tracking surveys or are developed for special purposes, such as major upcoming equipment purchases. Recently conducted studies include:

- **The Tiles Gateways / Crossways Corporate Park Employee Study:** Actively exploring new market opportunities for reverse commute, i.e. Manhattan to Long Island and intra-Long Island commuters, the Long Island conducted a self-administered survey of employees of two large suburban industrial parks on Long Island. Designed to help understand market potential, reasons people drove alone to the parks, and to test the appeal of commute alternatives including trains, shuttles, express bus service, carpools and vanpools, study results indicated weak market potential, in terms of gaining a significant number of commuting customers, for the railroad, yet provided valuable guidance in the allocation of limited resources.
- **Route 110 Demand Study:** Conducted to determine the market potential of specific bus route feeds to Long Island Stations, the Route 110 study is one of many studies designed to measure the demand for coordinated bus-rail service. This study, based on a large-scale self-administered survey, indicated that the 110 route could contribute a significant number of passengers per day to Long Island.
- **East End Study:** One of a number of studies the LIRR has conducted over the last few years to better identify specific market opportunities, the East End Study is a random digit telephone survey conducted to learn more about seasonal travel among adult residents of Manhattan, Queens and Brooklyn traveling to the Long Island's East End. Results from the study will be applied to a planned restructuring of service along the impacted branches as well as possible equipment modifications.

Although not conventionally associated with the application of market research, many capital projects at the LIRR are either the direct result of market research or research has been used as an integral part of the planning process. The LIRR has applied market research to decisions about everything from where capital resources should be applied for track improvements to station improvements. One of the best examples of this integration is the process applied to the purchase of the Long Island's replacement diesel fleet.

Currently, the Long Island Railroad uses two basic types of equipment for its service. The majority of the fleet consists of variations of all electric powered self-propelled multiple unit (MU) cars which can only operate on electrified right-of-way. The remainder of the fleet operates on non-electrified right-of-way and uses non-powered coaches hauled by conventional diesel locomotives. The "diesel fleet" operates on the outer portions of the railroad beyond its high-density service into New York City, and is made up of some of the oldest equipment in the system, leading to frequent breakdowns, increased maintenance costs and general customer dissatisfaction with the service. Moreover, most diesel fleet passengers transfer to electric equipment to complete trips to Manhattan, a process considered inconvenient by many customers.

The decision to replace the fleet was based on two key factors:

- Increased customer satisfaction and potential for increasing ridership; and
- Cost benefits based on maintenance savings and additional revenues from increased passenger satisfaction.

It was clear that the old and difficult to maintain equipment was resulting in complaints about reliability, seating comfort, climate control, cleanliness, bathrooms, state of disrepair and crew to passenger communications, as well as dissatisfaction related to the need to transfer.

Estimated cost to replace the fleet is \$307.8 million for 114 bi-level coaches and 23 diesel locomotives. With railroad equipment capable of remaining in service for 25 to 30 years, the decisions regarding the new equipment would have a major long-term impact on the Long Island's ability to maintain customer satisfaction. Early customer satisfaction studies – the railroad's annual on-board report card study – tracked customer dissatisfaction on the diesel branch lines as being relatively high compared to other services. This led to studies designed to assess specific aspects of dissatisfaction. It also led to another unique decision – the design of the new cars was to involve extensive customer input through market research.

From the beginning of the specification development process, market research, both qualitative and quantitative, was incorporated into the design of the new equipment.

Needing more specific data than the tracking surveys offered, the LIRR conducted on-board surveys of customers utilizing prototypes of the new double-deck cars – put into trial operation in October 1994. The findings indicated that, though the majority (68 percent) rated the new cars favorably, there was considerable room for improvement. Riders were dissatisfied with seat comfort, space, and a number of other specific elements. Significant changes were made to the design to meet customer satisfaction. However, more detailed information was needed before final specifications could be developed.

To gather this level of detailed information, the LIRR began a three-phase customer research program developed to help provide the product information necessary for final design. The phases consisted of:

- **Interior Design Concept Focus Group Testing:** Exploratory research among fourteen groups to elicit ideas from customers and line employees, and to test preliminary car design concepts;
- **Testing of full-size mock-up** of new car interiors; and

■ **Final prototype testing** of actual coach.

On a parallel track, the railroad will also be testing the various design concepts with line employees – from operating crew members to maintenance staff – the purpose of which is to make sure the customer input is fully understood by line staff.

The results of the focus groups have been reviewed by the railroad's senior management and in combination with the chosen car manufacturer as many recommendations as practical were incorporated into a full-scale mockup. The mockup will be used in a variation of future focus groups.

"The worst day of operations on the Long Island today is significantly better than the best day of the late 1980's. In 1990 the railroad was in crisis. It was either do something or fail to survive as an organization."

Charles Hoppe, former Long Island Railroad President

Long Island Railroad has clearly taken the challenge to "do something."



Transfort

Fort Collins, Colorado

Compared to You

A 22-bus system operated by the City of Fort Collins, Colorado, Transfort serves a growing city of 92,000, surrounding communities and the Colorado State campus. Designed almost twenty years ago to serve two primary markets – university students and transit dependents – the system was designed to try to serve as many of the potential origin and destination points as possible.

"The system was designed to serve the entire area from the prairies to the city center. You could get to almost anywhere in the Fort Collins area but not quickly or frequently, and that was the problem."

John Daggett, General Manager

Though there were apparent shortcomings to this method, the system operated in its original configuration for approximately ten years. Ridership grew enough that the decision was made to make some major capital investments in the operation. As part of this program, a full-scale Transit Development Plan was undertaken. Until 1989, the system had conducted no market research and relied primarily on ridership counts and unsolicited passenger comments to determine what types of service modifications were necessary. The system's transit development plans were based on the same informal information, as well as normal political input.

Their Research Program: Taking a Look At the Entire Operation

The city decided to take a bottom-up look at the entire operation, including a major market research effort to look at what riders and nonriders wanted from the system. A multi-tiered research effort was conducted, including:

- **Traditional rider counts** and local metropolitan planning organization data.
- **An on-board origin and destination study** that also included basic questions about rider demographics and attitudes toward the system.
- **A large-scale rider / nonrider mail survey** including a stratified sample of both university students and residents. The mailing lists were developed from residents'

utility bill information and from a complete student mailing list provided by the university.

- **Secondary quantitative studies** of riders, nonriders, students and residents to explore areas of particular interest developed as part of the larger surveys.
- **Formal and “informal” focus groups** to investigate the service plan developed as a result of the quantitative survey work and transportation development process.

Results of the survey indicated that the system, with its existing structure, was missing a great deal of its potential market and overserving other areas. A fundamental error had been made in the original service plan in that it did not recognize the full market potential of the university both in terms of route and fare structure.

As a result of the research, major route scheduling and fare system revisions were undertaken to better serve the university, while focusing service resources in the rest of the system. Following implementation and revision of the services indicated in the research, ridership for the system increased 300 percent from Colorado State in the first year.

The new service focused service on areas where research had indicated significant demand, and consequently key market segments received significantly improved service while marginal service was eliminated.

Transfort remains committed to the application of research to its TDP process and marketing efforts. It is currently in the process of completing its next major revision to the TDP. Like its predecessor, the current plan is based on a variety of research efforts – the key component of which is a systemwide household mail survey.

This critical study based on a stratified sample of 4,000 households in Larimer County, the entire existing and potential service areas of the Transfort system, was designed to:

- Develop a complete picture of regional mode split for the area;
- Measure rider and nonrider attitudes about Transfort as well as other transportation alternatives;
- Determine attitudes toward possible transit agency restructuring;
- Determine trip purpose by mode;
- Assess auto ownership; and
- Catalogue rider / nonrider demographics.

Initial results from the survey are currently being incorporated into the TDP planning process.

Besides acting as an information base for Transfort's TDP planning, the agency uses market research for special purpose studies, such as a recent survey of employees in an industrial area targeted by the regional metropolitan planning organization (MPO) for participation in a TDM program of traffic mitigation. Research showed that approximately five percent of the 10,000 employees would utilize Transfort service if it were offered. From this base, Transfort

set about convincing employers in the area that transit was an important part of the traffic mitigation effort. This led to the formation of a new program, where employers in the service area agreed to subsidize the marginal costs of new service to the area, while Transfort provides annual passes to the industrial area's employees. While now in the implementation phase, if the model is successful it will be applied to other employers throughout Transfort's service area.

"Fort Collins is committed to meeting [the MPO's] goal. This means that Fortrans has to be very aggressive in searching out customers and finding new ways to serve them. This requires a good look at our existing research and the development of new tools to better identify new market opportunities."

John Daggett, General Manager

**WMATA**

Washington, DC

Compared to You

The Washington Metropolitan Area Transit Authority, known as WMATA to most of its service area residents, is a large multi-state, multi-modal system serving the nation's capital. When created, WMATA assumed the operations of the Washington, DC bus system and a number of suburban services in Maryland and Virginia. Over the last twenty years, the agency has demonstrated an impressive record of growth led by the development of its well-known METRORAIL rapid transit system. METRORAIL serves as the radial high-density core of the system, with extensions to points in Virginia and Maryland focusing on downtown Washington. In addition, the agency's METROBUS system runs over 1,400 buses on in-city routes, suburban commuter services and intra-suburb operations. Though the rail line serves as the principal trunk link for the system, buses actually carry more of WMATA's trips daily.

Over the last four to five years, growth in ridership has slowed and turned into a decline and METROBUS ridership fall-off leads this decline. Ridership attrition has been serious enough to have a significant negative impact on the budget. Moreover, it has begun to interfere with the agency's ability to fulfill its mission of providing a high quality, alternative transportation system for the Washington, DC area.

"There are lots of things we just don't know about why and where our former riders have gone. This is a more significant problem on the METROBUS system than the rail."

Donna Murray, WMATA Research Analyst.

The factors contributing to this erosion of patronage prompted the agency to take a new look at the way it provides and promotes its services. Key to this overview was the development of a solid, research-based, strategic plan.

Due to the complexity of WMATA's market, serving:

- Commuters heading for jobs in the Federal Government largely concentrated in Washington, but dispersing into the Virginia and Maryland suburbs;
- Commuters working in the private sector in Washington DC, Maryland and Virginia;
- A large student population;

- A population more transient than most; and
- A significant tourist / visitor market.

it was determined that any attempt to attack the attrition of existing riders was likely to require a variety of strategies. It was important to focus on features of the service that could be modified to retain existing riders first while at the same time attracting new riders – a primary goal of WMATA's senior management.

Their Research Program: Pioneers in Applying Market Research

WMATA has had a research program in place for some time and pioneered the application of market research to the development of marketing programs for the transit industry. Market research results have served as the basis for a number of promotional and fare policy decisions. In addition to a variety of special purpose studies conducted over the years to deal with specific problems, ranging from focus groups for advertising concept testing to large scale studies of the METRORAIL's signage and information system, WMATA has maintained a series of major tracking studies over an extended period of time, including:

- **On-Board Surveys:** Conducted every two years, these studies are designed to measure rider attitudes toward the system as well as usage patterns using a sample size of more than 2,000.
- **Attitude and Awareness Studies:** Conducted annually using telephone surveying with a random sample of service area residents, the surveys measure demographics, travel patterns and attitudes about WMATA service among both riders and nonriders. By including questions designed to identify ridership status and reasons for discontinued riding, WMATA has attempted to use these studies to identify reasons for ridership attrition.
- **Origin and Destination Studies:** WMATA has conducted a series of origin and destination studies since creation of the agency – some of which are large scale, system-wide efforts, while others have been targeted at specific services or service areas.

Due to the large investment made in the core system, a larger percentage of the research effort has been directed at studies related to the METRORAIL system. This has, however, left some holes in the understanding of the large METROBUS system market.

To more fully understand the issue of rider attrition and to develop a more comprehensive view of market opportunities, the authority undertook the **Service Based Market Development Study**, designed to break the WMATA market into three geographic segments: Maryland, Virginia and the District of Columbia. The study also separated travel markets to and from the various geographic markets as well as trips within each of the states and districts.

Before developing a telephone survey questionnaire, **ten focus groups** were conducted with representatives of each of the segmented geographic areas – in part to minimize the impacts of WMATA staff imposing pre-conceived ideas into the questionnaire development, but also to enhance the development of questions for each of the geographic subgroups. Further analysis indicated that these subgroups were not enough. As a result, the suburb-to-suburb element was further divided into two groups, allowing for testing of six service alternatives for suburb-to-

suburb commuting. Designed to address key importance / performance characteristics and the need for the availability of off-peak service, the completed **random household telephone survey** included 825 households in Maryland, 815 in Virginia, and 195 in the District of Columbia.

The results of this study have served as a catalyst for WMATA to not only examine its current operating premises, but also to work quickly to better define the attrition issue. Study results have already been incorporated into the agency's marketing and pass sales efforts and will soon be incorporated into the proposed METROBUS strategic plan.

Due in large part to the results from this study, the authority's on-board messages are aimed at reinforcing the decision to ride WMATA. In addition, the agency has been heavily promoting increased off-peak usage of the system by existing riders through special event promotions. To help develop new riders, the agency is utilizing a targeted media effort, including television aimed at the target groups identified by the research. A new resident program aimed at individuals who move into targeted METROBUS service areas targets potential riders.

"The market segmentation information provided by recent research has become our bible."

Ralph Frisbee, Manager of Advertising.

As a "next step" in providing detail as to the specifics of why riders are leaving the system and to provide more geographically specific micro-pictures of where market opportunities exist, WMATA has begun the **Rider Analysis Study**. Designed to provide a neighborhood, or community, snapshot of the METROBUS market – needed in large part because of its own demographic and geographic complexity – the study will:

- Study the performance of the existing service in each geographic area;
- Provide a basis to plan new services in a holistic way, i.e. scheduling, routing and marketing; and
- Deliver and evaluate service in a unified manner.

Preliminary results were not yet available, but it was believed the year would see a new and major emphasis on market research with the Rider Analysis Study and other studies budgeted at \$300,000 for the year.



Whatcom Transportation Authority

Bellingham, Washington

Compared to You

Established in the early 1980's, Whatcom Transportation Authority (WTA) serves Bellingham, Washington and surrounding Whatcom County. In 1995, WTA introduced a brand-new bus fleet to the public. With its accessible fleet of 31 buses and 32 vans, WTA's 140 employees serve a population of 140,000.

Their Research Program: An Integrated Part of the Public Transportation Plan

In 1992, WTA developed its first major comprehensive planning effort, the Public Transportation Plan (PTP).

WTA staff wanted the PTP to address a variety of issues ranging from accommodating future population and employment growth to addressing immediate needs relating to improving bus operations and upgrading the agency's fixed facilities. WTA also wanted to incorporate, as much as practical, the findings of a community survey to help "design" future improvements in the agency's service, facilities, and supporting programs. The results of the survey, described below, provided a basis for several "products" that the WTA is gradually implementing.

The research results based on a telephone survey of Whatcom County residents – riders and nonriders – indicated several areas on which the WTA could focus would address concerns and interests on the part of both riders and nonriders. These areas included:

- **Evening Service:** At the time of the survey, WTA operated Monday through Friday between 6:30 AM and 6:30 PM and on Saturdays between approximately 9:40 AM and 5:40 PM. The research indicated a strong interest in WTA extending its service hours to allow transit to access activities occurring in the evening. This sentiment was particularly strong on the part of students at Western Washington University (WWU) which provides a major generator of demand for public transportation services. The WTA began "Nightline Service" – operating in the evenings, Monday through Saturday, resulting in significant increases in overall ridership for WTA's services. This increase occurred at a time when the agency's overall increase in service hours had been marginal. Of particular note about the Nightline service is that it involves a single route that connects major generators in the WTA's service area. The ridership gains were therefore achieved without a wholesale extension of service hours involving the systems fixed route network.

- **Monthly and Quarterly Pass Program:** Until April 1995, WTA did not have a pass program available to the public. Quarterly Passes were available to qualified seniors and persons with disabilities. The market research effort indicated that both riders and nonriders were attracted to the concept of a monthly pass. Students at WWU were particularly interested in a pass program, given their frequent use of WTA service at various times of the day and days per week.

Moreover, as part of follow-up focus groups held in 1994 to discuss potential fare changes, groups of riders and nonriders indicated strong support for the concept of a pass program for the general public. At those sessions, participants indicated particularly strong support for pass programs that would provide significant discounts over cash fares.

Consequently, WTA instituted new pass programs effective April 1995. The programs were part of an overall package of fare changes including increases in cash fares. However, the inclusion of the pass program helped win approval of the program by the WTA Board of Directors as well as general acceptance by the community.

- **Need for More Direct Service:** Finally, one of the concerns raised through the market research was the need to reduce transit travel times on the bus. Consequently, a major “trunk” route was realigned to provide a quicker and more direct link between major generators. The area no longer served by the route was replaced with the Meridian Shuttle. Through a transfer, customers could access areas previously serviced by Routes 9A/B as well as new areas not previously served. The implementation of this new circulator service also resulted in overall higher ridership levels due to customers living in the area having more convenient access to major generators through a quick bus ride. This contrasts with a possible loss of ridership due to the need by some customers to take two bus trips versus the previous one-bus trip to reach their destination. The increases in ridership can be attributable to two major factors:

- 1) Recognition from the market research results that providing more direct service along an important route serving multiple transit markets could have significant positive impacts on both current and potential new customers.
- 2) Implementation of replacement service that not only maintained overall coverage in an area no longer served by the realigned route, but also provided access to areas previously not served by public transportation.

“We’ve had success using market research to determine the products people want, so we’ll renew our research-to-service implementation process and continue developing WTA’s services this new way.”

Rick Gordon, Director of Service Development



Denver RTD

Denver, Colorado

Compared to You

Serving a multi-county area of approximately 1.9 million residents, the Regional Transportation District (RTD) of Denver, Colorado has a 14 member Board of Directors with each member elected directly by voters in the agency's service area. Bus operations dominate the system in terms of riders and service, however in 1994 light rail service was inaugurated. In 1994, RTD's ridership was approximately 48.5 million-boardings. Over the past few years, ridership has been gradually increasing.

Their Research Program: A Unique Approach

The Research and Product section of the Scheduling, Research and Sales Department carry out market research activities at RTD. A mix of research activities has been underway including traditional rider and nonrider surveys of the community.

Customer Panel: Six years ago the RTD established a 15-member Customer Panel which meets four times per year. The initial panel consisted of bus riders while a second, effective 1995, consists of light rail riders. Members are recruited through the District's newsletter which is distributed on buses and LRT trains. No payment is provided to Customer Panel members. However, a monthly pass is provided to those attending each of the four meetings of the Panel. A meal is also provided to the members given the 5:30 PM to 7:30 PM meeting time. If a Panel member attends all four meetings, an annual transit pass is provided by the District. In choosing panel members, RTD looks for diversity among members in terms of such characteristics as demographics and types of service that are used (for example, commuter, local, etc.).

There is substantial interest by RTD customers in joining the Customer Panel. Over 500 applications were received for the most recent bus rider panel. Attendance at previous panels averaged around 90 percent. In its recruiting of panel members the Denver RTD identified upcoming topics that will be discussed by members. Panel members, however, also have an opportunity to bring up particular issues that may not have necessarily been raised by staff.

The Customer Panel has provided an opportunity for Denver RTD management to have a sounding board regarding a variety of issues facing the agency, including:

- Upgrading of agency services,
- Future direction for RTD's services, and
- Assessment of new LRT service.

Telephone Information Center: In some cases, there is a specific service-related item that the Panel can discuss with agency staff. One of these items included RTD's telephone information system. The quality of any transit agency's information system can be a major determining factor in influencing a customer's decision to use the service. The RTD Customer Panel that met in 1994 helped re-engineer RTD's telephone information center. The panel also helped evaluate options regarding the new telephone system.

With input provided by the 1994 Customer Panel, the District installed a telephone answering system that allowed customers to listen to service updates and learn about District products and services without having to go through an operator.

Future Service Development: The Customer Panel has also provided direction regarding RTD's efforts relating to future service development. As part of the District's "Decide the Ride" program, over 20 meetings with the community were carried out. In 1994 the panel provided RTD staff with guidance regarding potential transit scenarios that were being presented at these community meetings.

This approach to customer involvement in the planning process is a significant departure from methods that have been traditionally used by transit systems. These methods are characterized by having customers involved relatively late in the overall planning process, perhaps through community meetings on a draft service plan.

On-Board Survey: As a mechanism for conducting qualitative research, the Customer Panel has been used to help RTD conduct quantitative research. For example, in late 1994, panel members helped direct an on-board survey of LRT customers. The panel provided guidance regarding methods for distributing survey forms.

Through its Customer Panels, the Denver RTD provided a mechanism to obtain ongoing feedback from current customers regarding various programs underway by the District. This ongoing and inter-active relationship between RTD and representatives of its current customers provides an opportunity for customers to participate in transit decision-making. Of particular importance, from the perspective of market research, is the role of the Customer Panel in helping to carry out other market research efforts such as the survey of LRT patrons carried out in 1994.

The availability of an ongoing forum for obtaining customer input has provided a resource to the RTD in carrying out various decisions that will affect both current customers and future markets. Other, more quantitative market research efforts such as rider / nonrider surveys are also carried out by RTD. However, the Customer Panel provides a mechanism that is both ongoing and inter-active that complements other research efforts.

Input provided by the Customer Panel resulted in various programs being more sensitive to the needs and concerns of customers. The changes involved a variety of items ranging from reviewing changes to the telephone information services to reviewing long-range transit development scenarios that will be presented to the public.

Through the Customer Panels, RTD managers have used results to show that decisions are not just relying solely on staff judgment or professional opinions. Management felt that input provided by the panel and other research efforts resulted in a higher level of credibility for decisions regarding service and other changes that the agency may consider.



Houston METRO

Houston, Texas

Compared to You

With more than 1,000 buses providing 60 million passenger trips, Metropolitan Transit Authority (METRO) in Houston, Texas is the tenth largest bus system in the United States. METRO's goal is to provide alternatives to single-occupant automobile travel that will relieve traffic congestion and air pollution. The agency is organized by two main functions: 1) Capital Projects and Traffic Management; and 2) Transit Services.

Their Research Program: Research for Decision-Making

In 1990, METRO instituted a market research function to develop, test and evaluate marketing concepts and campaigns. The function was recently expanded to include the development of new services by listening to residents. The Market & Service Research, Analysis and Evaluation Division is in the Service Development Department, one of four Transit Services departments. (The other three departments are Marketing and External Affairs, Transit Operations, and Maintenance.) The division is headed by Mark Douglas and staffed by three analysts who are guided by the following:

The goal of the Market and Service Research, Analysis and Evaluation division is to collect, analyze and present data in a meaningful and user-friendly manner to serve as a basis for informed, market-driven decision-making for the development of service; service expansion, adjustment and contraction; marketing and other authority activities that require a data based analytical framework.

Three types of market research activities are:

- 1) Front-end research to identify market needs and develop products and services;
- 2) Mid-cycle measurements to quantify ridership, track trends and assess service performance;
- 3) Back-end evaluation of marketing and other efforts.

Examples of recent studies include the following:

- **1993 Rider Attrition Assessment.** To address ridership declines, 5,000 households were contacted by telephone. The survey revealed that most former riders changed from riding METRO to driving because they bought a car or now work at a location METRO does not serve. Recommendations resulting from the study included: 1) a direct mailing which focused on convenient, on-time service to park-and-ride lots and offered free-ride coupons; 2) encouragement of current users to ride more often and for other purposes; 3) development of services to meet the needs of non-CBD bound residents.
- **Communications Tracking Survey.** About 800 quarterly telephone interviews measure awareness of METRO's advertising, news stories and functions. Respondents rate METRO's performance, image, and effectiveness.
- **Downtown Retail Impact Study.** To evaluate METRO's impact on the downtown area and gauge support for alternative transit center proposals, interviews of about 200 retailers and leasing agents were conducted.
- **Downtown METRO Rider Survey.** In-person interviews were conducted with 1,500 riders in downtown Houston to discuss plans for a new, centrally located transit terminal versus three centers just outside the downtown area. Respondents described the impact of each plan on their bus use; outlined transit center amenities they prefer; and estimated the amount of money they spend in the downtown area. Management and board members used the results to evaluate transit center options.

Several studies have focused on special routes or target audiences:

- **People with Disabilities Leadership Interviews.** Riding information materials were distributed to directors of service organizations, who were then interviewed by telephone. Recommendations from the survey included expanding the target of METROLift information from mainly physically disabled people to those with other disabilities; and sensitivity training for operators and staff.
- **Alternative Transportation Study, Greenspoint Employees.** METRO was considering expanding service to the Greenspoint Management District. Employees completed nearly 3,000 surveys about work schedules and transportation. Findings showed that 9 in 10 respondents drive alone to work; that parking is subsidized for 98 percent of employees; and neither traffic nor parking are seen as problems. Actions recommended include distributing environmental educational materials; offering incentives for using alternative ways of commuting; and instituting disincentives such as parking fees to discourage driving alone.

Other surveys measured the effect of pricing programs on demand:

- **Tokens Campaign.** A portion of a Communications Tracking Survey of 800 households tested the effectiveness of television, radio and print advertising regarding tokens and other prepayment instruments. Results showed that the campaign resulted in a 66 percent increase in the awareness of the cost savings accrued through the use of passes, tickets and tokens. Token redemption nearly tripled during the advertising period.

- **Freedom Passport Program.** During a six-month demonstration, ADA-certified METROLift passengers could ride METRO's fixed route bus service free with a Freedom Passport. The goal was to convert patrons from door-to-door METROLift service to regular fixed route service. An evaluation survey showed that 13 percent of METROLift clients used the Freedom Passport and that the revenues lost by providing free rides were offset by the reduced subsidy. Movement of METROLift passengers to fixed-route service also created capacity for other METROLift users.

A systematic process to determine the most appropriate services to implement has evolved at METRO. The first step in this experimental process involves market research to determine the area's needs. New service development surveys are slated for this year. They include:

- **Experimental Service Feasibility Surveys** in trip origin neighborhoods that will test suburb-to-suburb commute services, nonstop transit center shuttles, high-speed expressway service, and demand-responsive and neighborhood-focused services.
- **METROVan/Subscription Service Demand Surveys** to determine the demand for new METRO products such as subscription service that responds to the shift in demand for transportation services to smaller employment pockets that could not support fixed-route service.
- **University Program Research** to test the appeal of programs at the University of Houston and Texas Southern University, such as adding a transportation fee to enrollment costs that would allow students to ride METRO at no additional fare.
- **Probationary Route Research** to analyze routes that are not meeting productivity goals. Riders will be surveyed to determine how service could better meet their needs.

Other planned surveys will define market segments; measure customer satisfaction; and assess the needs and attitudes of Hispanic and Asian residents.

Noteworthy elements contributing to the success METRO is experiencing in the use of market research include the following. First, all potential users of the research are involved so that research projects are designed to provide information for the decisions facing METRO. Second, success has been demonstrated over time. When research results were used to develop programs, the improved products and services were very popular with riders. Third, management realizes that the agency cannot be doing everything perfectly, and is willing to acknowledge both opportunities and problems. This results in "objective, not defensive research." Fourth, the organization, skill and philosophy of the market research department itself enable the production of solid, quality data. The individuals are skilled in transportation and market research techniques. Finally, the agency has committed significant resources to this function.



Metro-North Commuter Railroad

New York, New York

Compared to You

Metro-North, an 800-car commuter rail operation providing 57 million rides in 1993, merited APTA's Outstanding Achievement Award last year. Since Metro-North was created 11 years ago to serve New York City and its suburbs in New York and Connecticut, it has overcome its inheritance of badly deteriorated infrastructure, old, poorly maintained equipment, and complex operational history. Metro-North's New Haven Line was once a part of the New York, New Haven and Hartford Railroad; its Hudson and Harlem Lines were part of the old New York Central Railroad; and its Port Jervis and Pascack Valley Services were part of the Erie Lackawana Railroad operations. These railroads went through a series of consolidations that resulted in the creation of the Penn Central Railroad. The Penn Central and Erie-Lackawana later collapsed in one of the largest bankruptcies in U.S. history. With federal government assistance, Conrail was created to salvage the vital Northeast rail network, but the focus of Conrail was on major capital improvements and freight service. Never a moneymaker, commuter rail was left to deteriorate.

Public perception and ridership suffered. This led state leadership to commit to rebuilding the rail, replacing and adding equipment, and doing things differently than in the past. A member of the Metropolitan Transportation Authority (MTA) of New York (the umbrella agency for the Long Island Railroad, New York City Transit Authority with 8,000 subway cars and 2,200 buses, and the Triborough Bridge and Tunnel Authority), Metro-North now has steadily growing ridership, and dramatically improved maintenance, operations and customer service.

From 1983 to 1993, the fare-operating ratio increased from 37 percent to 54 percent and the operating subsidy decreased \$25 million. On-time performance went from 80 percent to 96 percent and ridership increased by 11 million annual rides.

Their Research Program: A Part of Their Culture

Services are provided based on what the public wants rather than operational convenience or a history of having "always done it this way." Having gone beyond being customer-driven, this *market-driven* research strategy is basic to Metro-North's and MTA's philosophy. Rider and nonrider research is coordinated between the agencies; Metro-North also has its own market research department.

Planning, development, marketing and market research are viewed as the same function, headed by Vice President of Planning and Development Howard Permut.

"In the beginning, market research meant developing a passenger counting system. There was no history of how many people were on the train or riding between specific station pairs. The main effort then was to determine scheduling needs, in order to avoid misallocations of equipment and employee hours. Now Metro-North can identify rider trends on any train or station in the system."

Howard Permut, Vice President of Planning and Development

In the beginning, no customer satisfaction research was needed because in general, service was terrible. As service improved, more sophisticated research was developed over time. The next efforts were on-board studies that revealed the demographic characteristics of passengers, origin/destination information, and passenger ratings of performance, equipment and customer service.

As performance and customer confidence improved, Metro-North determined that pushing for ridership growth would require developing and understanding *new* customers. Thus, surveys of nonriders were begun. These now identify nonriders' demographic and commuting characteristics, attitudes toward Metro-North service, market share, new products, promotional messages, target audiences, and the effectiveness of new programs.

Metro-North President Donald Nelson sets the tone for integrating market research into the entire operation.

"Market research is part of our culture. I want the best research and analysis I can get before I make any important decisions."

Operations staff members agreed:

"We really use this stuff. Market research results are frequently brought to the board level as evaluation tools and the basis for future plans."

Research methods vary according to the kinds of information needed. Regular tracking surveys include an **annual on-board customer satisfaction survey**, providing ratings of some 50 service attributes, plus passengers' fare payment methods, origin/destination and demographic information (about 6,000 respondents), and **twice-a-year rider/nonrider tracking surveys** to measure advertising awareness, attitudes and demographic information, travel patterns and market share (about 2,000 respondents). Agreement statements describing Metro-North's service versus driving are featured in the studies.

Follow-up work such as **on-board focus groups** are used for more information on customer satisfaction (or dissatisfaction). Often, operations, maintenance and mechanical staff view the focus groups in action and find the experience valuable in implementing the changes suggested by the groups. While Metro-North serves some of the most affluent suburbs of New York, it was a surprise, for example, to find that the upscale commuters expected airline-type

facilities. Consequently, the agency now has an extensive program to upgrade passenger amenities in order to provide what the market wants.

Focus groups to test advertising creative concepts were used in 1992 to judge two different approaches to television commercials. Advertising showing the benefits of and reasons for choosing commuter rail were compared with ads portraying friendly, caring Metro-North employees. Because the employee spots appealed to the target markets more, Metro-North approved them for development.

A 1991 survey resulted from origin / destination studies showing a trend toward reverse and intermediate commute trips. The **"Increasing Ridership to Suburban Job Locations"** study combined existing employment data, intercept rider interviews conducted at the station platforms, and interviews with employees and top management at suburban job sites to determine what could be done to better serve this reverse commute market.

Metro-North is proud of its ability to track long-range trends and spot problems with a solid history of data, and will continue its regular six- and twelve-month studies. Specialized studies are likely to evolve from issues raised in the major tracking surveys or to address specific management questions. Additional planned market research relates to parking at the stations, reverse and intra-suburban commute trips, and new product development, such as revenue producing on-board services (breakfast carts or computers) and opportunities at the stations.

The use of market research is integral to attracting and keeping customers. The efforts are successful because rider / nonrider research results are requested and used throughout the organization.

"At Metro-North, we feel it's the role of market research to determine what our customers and potential customers want, and for our planning and operations departments to do whatever it takes to provide those services."

Metro-North President, Donald Nelson



Orange-Seminole-Osceola Transportation Authority

(LYNX) Orlando, Florida

Compared to You

LYNX has increased ridership by 34 percent in the past eighteen months, in its Orlando, Florida service area of Orange, Seminole and Osceola Counties.

The all-bus system with only 140 vehicles serves a population of 1.2 million. That's about the same size population as Portland, Oregon's Tri-Met serves with a bus fleet that is five times bigger and also features a light rail system.

Formerly known as Tri-County Transit, it was run by a private company for about twenty years. Although the system was operated adequately, there were few community outreach efforts. Subsequently, there was little interest in the system. Often there was not even a quorum at transit board meetings.

Three years ago, the private contract ended and an active, influential community leader, Jacob Stuart, became chairman of the board. Under his leadership, the staff assumed responsibility for operations. New employees joined in.

Their Research Program: Being Prepared to Move Quickly

A strategic plan was needed and it was decided to base it on taking a fresh, open-minded look at the market. An initial survey of 1,200 households, personal interviews with forty community leaders, and three focus group studies were commissioned to:

- 1) Determine demographic, psychographic, and travel characteristics of current riders, potential riders, and staunch non-users;
- 2) Define market segments and their perceptions of incentives and deterrents to bus usage; and
- 3) Identify persuasive appeals and new services that would increase bus usage.

The report revealed that awareness was low. Few people could identify the system by name or knew much about the service. While respondents supported transit in general, support of this particular transit agency lagged. The agency received below average ratings on customer satisfaction, visibility, usage and market penetration.

Because of its sincere desire to effectively serve its markets, the new agency was interested in uncovering the truth so it could respond.

The research results were the foundation for the action oriented Master Plan. The first chapter of the plan summarizes the findings from the initial market surveys. The plan was built on what LYNX learned in studying its markets. To LYNX, everyone is a customer – those who ride and those who don't, the board, the community, businesses and visitors.

The first objective was to raise the awareness of transit and attract attention. A new name for the organization was the subject of a three-county contest in which 12,000 entries were received. The downtown transit center was painted a bright flamingo pink. Today, LYNX buses come in all sorts of colors. There is even a plaid articulated bus. Advertising "paints" include the entire bus. One bus looks like a giant pizza delivery truck; another is bright red (including the windows) with a soccer player across the side, advertising Orlando's World Cup soccer games.

Market research at LYNX is used daily and continuously for a variety of decisions. They use the community survey information every time they make a public presentation or in any discussion with a community group. LYNX is also doing a system-wide onboard survey to contribute information for the regional travel-forecasting model.

The major, ongoing research effort is the Service Evaluation Review Committee (SERC) studies, done in response to a request for service. LYNX staff does small-area, onboard surveys near the location of the service request. They take laptop computers onboard the buses and directly input the questionnaire responses; special software provides results almost instantaneously.

LYNX also uses the **on-board surveys** on a spot basis to address specific service questions. They rapidly gather the information, combine it with other information about the area, determine if a new service idea has merit, and quickly institute the service change at the next sign-up. If it works, the service continues; if not, it is dropped at the next regular service change.

The ability to cut through much of the red tape commonly associated with public agencies and start new service in a very short time shows an enthusiastic, customer-driven approach. The research establishes credibility for the sometimes revolutionary changes that the board is requested to approve. It isn't just staff, but the community who is asking for the changes.

LYNX reacts quickly and implements new ideas so rapidly, there may not be enough time for research. "Market research is fine, but often you don't have time to wait," declared one manager. In these cases, LYNX is apt to try things and then find out what happens.

The results have been very good. Although not much research was done in relation to advertising, LYNX tried a frequent-flyer type of program. People got a card, and when it was punched forty times, they received an umbrella. Staff expected participation of 2,000 to 3,000 people. The first recipient completed his card in two days, and so far they are up to 7,000 recipients and still counting. LYNX ran out of umbrellas several times and now knows to include the phrase, "while supplies last."

In response to the many smaller surveys and its commitment to making active contributions that improve people's quality of life, LYNX provides a useful and attractive set of transit services and takes an energetic community development role. For example, LYNX provides free transit for United Way volunteers and other community organizations. LYNX also helps in the management of traffic congestion and develops many cooperative promotions that benefit everyone.

While awareness and ridership are at an all-time high (about one million rides per month), LYNX serves a difficult area. *Orlando* magazine stated, "Orlando has been something of a poster child for urban sprawl over the past 25 years." (May, 1993) The market is very competitive. Besides the automobile and the extensive use of rental cars, there are over 200 private transportation providers in the Orlando area (plus the larger-than-LYNX Disney fleet).

Currently, there is no dedicated funding source, and this complicates long range planning and service provision. LYNX is popular and has been successful in obtaining sufficient support from the three counties it serves, but LYNX plans on a public vote at some point to secure a long-range funding source. In order to be successful, they have to prove to the community that this is a good investment and a worthwhile organization to support with tax funds.

The agency has made tremendous progress in only three years, based on using the results of its research, its community and customer-orientation, and open attitudes about trying new things (even though they may be unconventional). Given their record thus far and their skills at listening and responding to their customers, they appear positioned for continued increases in ridership and community acceptance.

Their successes in using research and trying new things are based on seven key attributes:

- 1) **LYNX is a market-driven organization, at all levels.** The word "retail" comes to mind when viewing their activities. They view themselves and their services as products to be sold to customers, and everyone is a customer. They compare their products to others in the marketplace and to other service providers.
- 2) There is a **fundamental belief in the value of research**, beginning at the top with the Chairman who comes from a background of political campaigns and polling. Market research about LYNX, their competition, and the marketplace is intrinsic to the way they do business.
- 3) Management and staff **understand the market research** information and uses it. They integrate data from various studies with their resources and insights to make good decisions.
- 4) LYNX is **willing to face the truth and do something** to address issues and problems raised in the research. Throughout the organization, they feel that if research is done well, then you accept the results (whether you like them or not) and use them to improve service.
- 5) LYNX has **very clear objectives for its market research**. They identify specific questions or needs for the data, then design a research effort to directly answer those particular needs.

- 6) The **agency acts very quickly**. They make changes almost on a daily basis. Their timely responses to customer input allow them to take advantage of market opportunities – much like successful private enterprise.
- 7) LYNX is **sincerely making an important contribution to the community** at large. Through its participation in many activities, sometimes quietly and anonymously, the region is a better place because of its transit system. There is a spirit of true community commitment beyond providing a good product at a reasonable cost.

LYNX has captured the imagination of the people it serves. People now look at transit in a new way, thanks to the standout transit center, brightly colored buses, aggressive promotions, many service improvements, and active community role LYNX has taken.

LYNX began by honestly focusing on what people wanted. To be fair though, having a neighbor like Disney opens creative avenues that may not be available to all transit systems who respond to research in their markets. Yet the key factors that make LYNX a successful, market-oriented organization apply to every service provider.



King County Department Of Metropolitan Services

Seattle, Washington

Compared to You

Metro Transit serves 1.5 million people in King County, Washington, a 2,200 square mile area including Seattle and Bellevue. Since January 1993, the 13-member Metropolitan King County Council of directly elected officials who represent geographic districts has governed Metro.

Metro operates 1,200 coaches serving 58 million annual passenger trips, a two-mile monorail serving 2 million annual trips, a vanpool program serving 2.3 million annual passenger trips, and a custom bus program serving 300,000 annual trips. Metro's 3,800 employees include about 2,400 operators.

Their Research Program: Growing an Internal Research Function

In the 1970's, Metro began its marketing research function with a staff of one. At that time, Seattle was where the jobs were, and Metro's downtown Seattle-oriented system served the commuter market well. As outlying areas were developed, however, dispersed employment sites offered plenty of free parking. As more women entered the work force, the work trip increasingly included other trips, such as child transportation and grocery shopping. Drive-alone commuting and traffic congestion increased. By the mid-1980's, Metro's ridership had declined sharply.

In 1986, Metro formed a Research & Market Strategy Division (R&MS) by re-assigning planners, information staff, and a market research analyst, and hiring a new manager. A supervisor and three senior level researchers, none of whom had transit backgrounds, were also hired. Training programs in statistics and market research techniques were offered to the re-assigned transit employees, while the new hires spent time with operations, planning and other divisions to learn the transit business. The cross training led to a department staffed by people with strong transportation *and* market research skills. At the time, Metro management attributed the ridership decline to a failure of advertising and communication efforts rather than to changing customer transportation needs. Thus, Research & Market Strategy's main focus was on advertising, promotion and evaluation. Soon, however, the Division took on other roles that broadened its input into management decision-making – improving Metro's ridership forecasting and econometric models, collecting and maintaining data in support of federal reporting requirements, assistance with setting goals and objectives for Metro Transit Department's management strategy.

In 1989, management brought in R&MS for a purely internal research purpose – to design a Metro employee questionnaire. This was the beginning of a new, expanded role for the Division in providing internal research. It was also a key event in redefining "the customer" not only as the external public Metro serves, but the internal public of drivers, vehicle maintenance workers, and managers as well.

At first, management was skeptical of customer research and the researchers.

"There was a growth period of acceptance of the Division. The lead members of the new Division didn't know about transit initially. Managers were skittish and used to doing things their own way."

Metro Manager, Research and Market Strategy

Today both internally- and externally-focused customer research is central to the Transit Department. R&MS Division research and management consulting activities include: customer surveys, travel behavior studies, and public opinion research; operations research; econometric modeling and forecasting; focus group services through in-house facilities; evaluation research; information systems development, project management services for other divisions; problem solving; and management strategy development.

"I put market research at the top in terms of usefulness. We need to know what the customer thinks to be successful."

Paul Toliver, Transit Director

How did customer research go from skepticism to integration and usefulness at Metro Transit? By building trust, tracking customer perceptions over time, and having skilled staff to help the "internal customer."

- **Building trust.** Management identified trust as an important element in the success of customer research. R&MS earned a reputation for: (1) responsiveness, timeliness, accuracy and quality work products. "No one has to worry about them getting the job done or done right or it being done when they say it will be done and when the information is needed," said one manager; and (2) neutrality, objectivity, and non-threatening attitudes of researchers. "R&MS is neutral, objective, trusted, and people are comfortable with them," said another manager.
- **Tracking perceptions.** Tracking customer data over time has been valuable in establishing the validity of customer perceptions in the eyes of management. "Results, particularly those over time get repeated and it sinks in. People come to understand that their gut isn't always right," said one manager. "Part of (R&MS) success comes from showing consistent market research results over time. Consistent themes emerge and finally the point is made," added another manager.
- **Supporting the internal customer.** Assisting other divisions with problem solving, improving internal business practices, and organizational decision-making evolved over time as research staff training in the scientific method and problem solving became known in the Department. The R&MS Division has been very successful in this new, research-related role.

"A main value of the division is being able to look at information objectively, problem solve with others, and facilitate what others are doing. This role has developed as others in the agency worked with the Division personnel over time."

Metro Manager

The Research & Market Strategy Division offered suggestions for other transit agencies' research staff members to help integrate this function into their organization and its decision-making process:

- 1) Build a reputation for high quality** research and a "can-do" attitude.
- 2) Remain neutral and objective.**
- 3) Be visible through outreach activities** within the organization, such as giving tailored presentations of findings to staff or board members and widely disseminating research results.
- 4) Add to the value** of research by making it integral to other divisions. Examples include assisting the internal customer with employee surveys; developing performance indicators; facilitating team building efforts; developing employee performance appraisal systems; and finding ways to effectively summarize and display trends in internal data.
- 5) Focus on helping others be more efficient**, save time or be more successful, rather than impressing others with one's expertise or knowledge of "the truth." As one manager said, "Help me be successful and I will come running. Tell me what to do and I'll run the other way."
- 6) Recognize that building confidence and trust takes time** and be willing to stay the course.



Notes and Resources

Resources

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Glossary

| | |
|---|--|
| allowable sampling error | The amount of sampling error the researcher is willing to accept. |
| banner | A method for showing several cross-tabulations in one, condensed table in order to save space or facilitate comparison, ordinarily used only when one variable is cross-tabulated against several others. |
| bivariate regression analysis | Analysis of the strength of the linear relationship between two variables when one is considered the independent variable and the other the dependent variable. |
| callbacks | The second and subsequent attempts to contact respondents by telephone or in person when they were not present to respond to the first attempt to contact them. |
| central location telephone interviewing | Interviewers make calls from a centrally located marketing research facility to reach and interview respondents. |
| chi-square | A value, usually obtained from cross-tabulation of two items in survey research, that can be compared with the values of the chi-square distribution to obtain a probability for assessing statistical significance. |
| chi-square test | Test of the goodness of fit between the observed distribution and the expected distribution of a variable. |
| classification variables | Survey items, such as demographic variables, that are used to classify respondents into groups or categories for comparison. |
| closed-ended questions | A structured survey question where the alternative answers are listed so that respondents must ordinarily pick only from among them. |
| coefficient of determination (R²) | The percent of the total variation in the dependent variable explained by the independent variable. |
| computer assisted telephone interviewing | Central location telephone interviewing in which the interviewer enters answers directly into a computer. |
| conditional branching | Instructions or "go-to" statements in a questionnaire indicating the interviewer or respondent should skip items that don't apply, based on answers to previous questions. |
| confidence interval | The range around a numeric statistical value obtained from a sample, within which the actual, corresponding value for the population is likely to fall, at a given level of probability. |
| confidence level | The specific probability of obtaining some result from a sample if it did not exist in the population as a whole, at or below which the relationship will be regarded as statistically significant. |
| consumer orientation | Identification of and focus on the group of people or firms most likely to buy a product and production of a good or service that will meet their needs most effectively. |
| convenience sample | A sample selected more on the basis of the researcher or data collection team's convenience than on the requirements for random selection with a known probability of inclusion and representation. |

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| corporate marketing research department | A department of a major firm that produce or oversee collection and analysis of information relevant to marketing the firm's present or future products or services. |
| critical value | The probability level above which a relationship between variables will not be regarded as statistically significant because it is too likely that it could result only by chance from sampling error if the variables were actually not related in the population as a whole. |
| cross-tabulation | Examination of the responses to one question relative to responses to one or more other questions by plotting two categorical variables in the form of a matrix so that the values of one variable define the rows and values of the other define the columns, with the cells containing the frequency of cases with a given value for each of the two items and from which a chi-square value can be computed to assess the statistical significance of the relationship. |
| data analysis | The manipulation of numbers, letters, or symbols in order to suppress the detail and reveal the relevant facts or relationships. |
| data collection | The process of communicating questions and obtaining a record of responses from a sample, either by mail, telephone, or personal interviewing. |
| demographics | A set of conditions or attributes of people, often including age, sex, marital status, education, employment, occupation, and income, among others, usually measured in surveys to determine the types of people represented by the sample and to make comparisons of other results among demographic groups. |
| dependent variable | A symbol or concept expected to be explained or caused by the independent variable. |
| depth interviews | One-on-one interviews that probe and elicit detailed answers to questions, often using non-directive techniques to uncover hidden motivations. |
| descriptive research | Research that is designed primarily to describe rather than to explain a set of conditions, characteristics, or attributes of people in a population, based on a measurement of a sample. |
| descriptive statistics | Statistics such as averages and measures of spread, used to suppress the detail in data files and to condense and summarize the data to make facts more visible, as well as to indicate the degree to which the sample data are likely to represent the entire population. |
| dichotomous questions | Questions that ask the respondent to choose between two answers. |
| discriminant analysis | A statistical measure of the relationship between a continuous, numeric independent variable from an interval or ratio scale and a categorical dependent variable defining two or more groups, used both to assess statistical significance and also to compute the discriminant function, used to predict or classify new cases into groups. |
| discussion guide | A written outline of topics to cover during a focus group discussion. |
| disproportional or optimal allocation | Sampling in which the number of elements taken from a given stratum is proportional to the relative size of the stratum and the standard deviation of the characteristic under consideration. |
| exploratory focus groups | Focus groups that aid in the precise definition of the problem, in pilot testing, or to generate hypotheses for testing or concepts for further research. |
| exploratory research | Preliminary research to clarify the exact nature of the problem to be solved. |
| field service firms | Companies that only collect survey data for corporate clients or research firms. |

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| focus group facility | Facility consisting of conference or living room setting and a separate observation room. Facility also has audio visual recording equipment. |
| focus group moderator | The person hired by the client to lead the focus group. This person may need a background in psychology or sociology or, at least, marketing. |
| focus groups | Groups of eight to twelve participants who are led by a moderator in an in-depth discussion on one particular topic or concept. |
| go errors | An error that results when a decision-maker goes ahead with a course of action and it proves to be costly or unsatisfactory. |
| goals | Specific objectives or ends sought by respondents that may be a topic for survey research measurement within the broader topic category of "needs." |
| hypothesis | A conjectural statement about the value of some variable or the relationship between variables that will be tested and ultimately accepted or rejected on the basis of statistical analysis of survey results, most often used in formal scientific or academic research. |
| incidence rate | The percentage of people or households in the general population that fit the qualifications to be sampled. |
| independent variable | The symbol or concept over which the researcher has some control or can manipulate to some extent and that is hypothesized to cause or influence the dependent variable. |
| inferential statistics | Any statistical measure that can be used to make inferences or generalizations about a population, with a known level of probability, based on the values or conditions of a sample. |
| information needs | The specific categories of information required by those sponsoring pragmatic survey research, in order to make decisions or choices or to set policy, or required by those conducting academic research to test a theoretical or conceptual hypothesis and enhance some body of knowledge or literature. |
| instrumentation | The survey questionnaire and other devices, such as cover letters, rating cards, and the like, used to obtain data from respondents. |
| instrumentation bias | The tendency for some aspect of the survey instruments to cause respondents to answer in a particular way or systematically "push" or "pull" the survey results in some given direction, thus reducing the survey validity. |
| instrumentation error | The tendency for some aspect of the survey instruments to randomly affect the data in such a way that they are not true representations of the respondent opinions or conditions, but there is no specific direction or systematic influence, so that survey reliability is reduced. |
| interpretation error | Error that results when interviewers are asked to interpret responses during the interview or make judgments about the responses. |
| interrogation error | Errors that occur when questions are expressed differently from one respondent to the next. |
| interval scale | Any scale where the intervals between scale points are equal, even though there may be no zero value or zero does not represent a complete absence of the thing measured, such as the Fahrenheit scale. |
| interviewing bias | The tendency for some aspect of the interviewing to cause respondents to answer in a <i>particular way</i> or systematically "push" or "pull" the survey results in some given direction, thus reducing the survey <i>validity</i> . |

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| interviewing error | The tendency for some aspect of the interviewing to randomly affect the data so they don't truly represent the respondents' opinions or conditions, thus reducing the survey <i>reliability</i> . |
| judgment sample | A sample selected on the basis of the researcher's judgment about what units or respondents should and should not be included, as opposed to random selection. |
| level of confidence | The specific probability of obtaining some result from a sample if it did not exist in the population as a whole, at or below which the relationship will be regarded as statistically significant. |
| multiple regression | Linear regression that uses a single dependent variable and two or more independent variables in the same analysis, in contrast to simple, linear regression using only one independent variable, so that both the effect of each independent variable and the effects of interactions among independent variables can be gauged. |
| multivariate analysis | Statistical analysis techniques to assess the relationships or patterns among more than two variables simultaneously, including such methods as multiple regression, factorial analysis of variance, analysis of covariance, factor analysis, cluster analysis, multidimensional scaling, and the like. |
| mutually exclusive categories | Response categories defined to ensure a unique association between any given answer and only one category or alternative, so no response can fit into two or more categories. |
| no-go errors | Errors that result when a decision-maker either fails to take some action that would have positive results, or ignores an alternative that would be more positive, choosing some less positive course. |
| nominal scale | A scale that uses numbers, letters, or symbols only as the names of independent categories, so that the scale values do not stand in any ordered relationship to one another. |
| nonrespondents | Those in the population who were included in the sample but failed to respond because they refused or could not be reached, or for some other reason. |
| nonresponse bias | A systematic effect on the data reducing validity that results when those with one type of opinion or condition fail to respond to a survey more often than do others with different opinions or conditions. |
| ordinal scale | A particular type of scale where the response alternatives define an ordered sequence, so the first is less than the second, the second less than the third, and so on, yielding ordinal level data where the intervals between scale points are not known or necessarily equal. |
| panel data collection | A survey of a group of preselected respondents who agreed to be panel members on a continuous basis for a given period of time and provided demographic data, allowing selection of special groups and permitting the use of surveys to monitor responses over time. |
| personal interview | Data collection accomplished with the interviewer in the presence of the respondent, so that they have visual contact, as opposed to telephone interviewing. |
| pilot survey | A brief preliminary survey, often using a small, convenience sample, conducted to test the survey instruments and data collection method before the project details are finalized and the larger, formal survey conducted. |

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| population | The definition of all those people or elements of interest to the information seekers and from among whom the sample will be selected. |
| precision | The range of confidence interval at a given level of probability, expressed in absolute terms or as a percentage of the mean value. |
| preferences | Predetermined choices by respondents from among alternative goods, that may be a topic for survey research measurement within the broader topic category of "needs." |
| pretest | Preliminary trial of some or all aspects of the sampling design, survey instrumentation, and data collection method, to be sure there are no unanticipated difficulties or problems. |
| primary data | Data collected for a particular project to meet specific information needs, as opposed to data that already exist for general use or as the result of inquiries for other purposes. |
| probability sampling | Any sampling design where every element in the population has either an equal probability of selection, as with random sampling, or a given probability of being selected that is known in advance and used in analysis to assess significance. |
| qualification | The process of inspecting or interrogating potential respondents to be sure they are qualified to respond or that they fit the quota specifications for a particular interviewer. |
| qualitative research | Research obtaining data in the form of words or other indications that do not lend themselves to quantitative analysis and whose analysis and interpretation depend on subjective judgments by experts. |
| quantitative research | Research obtaining data in the form that can be represented by numbers, so that quantities and magnitudes can be measured, assessed, and interpreted with the use of mathematical or statistical manipulation. |
| questionnaire | The basic survey instrument containing instructions, questions, or items, response alternatives where appropriate, and specific means for recording responses. |
| quota | A set number or proportion of respondents with given characteristics or attributes sought in a sample or assigned to specific interviewers or fieldworkers. |
| quota sample | Any sampling design that requires a set number or proportion of respondents with given characteristics or attributes. |
| quota specification | The listing of quota requirements for the entire sample or for specific interviewers, including identification of the characteristics that define the quota, the manner in which they are to be ascertained, the method of qualification of respondents, and the number or proportion of respondents who are to have each attribute or combination of attributes. |
| random digit dialing | A sampling system for telephone surveys where all telephone numbers in-households or all that have one of a given set of three-digit telephone number prefixes are regarded as the sample frame, and the seven-digit or four-digit numbers are generated and dialed manually or automatically to obtain the sample. |
| random sampling | A sampling design that seeks to select respondents from the population or sample frame in a completely random fashion, so every respondent has an equal probability of being selected. |
| rating scale | Any scale from which respondents choose values that represent their responses, ordinarily yielding interval or ratio level data. |

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| ratio scale | Any scale that has the same characteristics as an equal interval scale, plus the fact that zero represents the complete absence of the thing being measured, so that a ratio of one scale value to another has a meaningful and legitimate interpretation. |
| regression analysis (simple linear regression) | A statistical measure of the effect of one interval or ratio level variable on another, used both to indicate the statistical significance of the relationship and to generate an equation to predict or estimate the value of the dependent variable for a new case, based only on the known value of the independent variable. |
| regression equation | The equation generated by linear regression analysis, expressed as a coefficient that can be multiplied by the value of the independent variable for a new case and a constant to be added to predict the unknown value of the dependent variable. |
| reliability | The degree to which the survey results are free from random error, as opposed to systematic bias, often expressed in terms of confidence intervals or confidence levels. Also measures that are consistent from one administration to the next. |
| research design | The plan to be followed to answer the research objectives; the structure or framework to solve a specific problem. |
| research request | Document used in large organizations that describes a potential research project, its benefits to the organization, and estimated costs. A project cannot begin until the research request has been formally approved. |
| responding sample | The number of cases with valid responses to the survey or to an individual survey item, as opposed to the total sample size. |
| response bias | The tendency for some aspect of the response task, such as annoyance or a desire to please the interviewer, to cause respondents to answer in a particular way or systematically "push" or "pull" the survey results in some given direction, thus reducing survey validity. |
| response error | The tendency for some aspect of the response task, such as boredom, inattention, or fatigue, to randomly affect the data in such a way that they are not true representations of the respondent opinions or conditions, but there is no specific direction or systematic influence, so that survey reliability is reduced. |
| response rate | The percentage of those included in the sample who responded to the survey and provided usable, completed questionnaires. |
| sample selection bias | Any form of bias resulting from the selection of respondents in a manner that deviates from random selection, so that some types of respondents are over- or underrepresented in the sample. |
| sample unit | The smallest unit of the sample to be surveyed or the unit that will constitute one case for analysis, ordinarily one respondent or questionnaire. |
| sampling design | The specification of the sample frame, sample size, and the system for selecting and contacting individual respondents from the population. |
| sampling error | The degree to which results from the sample deviate from those that would be obtained from the entire population, because of random error in the selection of respondent and the corresponding reduction in reliability. |
| sampling frame | List of population elements from which we select units to be sampled. |

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| scale | A set of symbols or numbers so constructed that the symbols or numbers can be assigned by a rule to the individuals (or their behaviors or attitudes) to whom the scale is applied. |
| scale interpretation error | Error associated with the use of rating cards where respondents answer with the name of a category, rather than its number or code, and the interviewer records the wrong code value because the category names are not listed on the questionnaire. |
| scaled-response questions | Multiple choice questions where the choices are designed to capture the intensity of the respondent's answer. |
| scaling | Procedures for assignment of numbers (or other symbols) to a property of objects in order to impart some of the characteristics of numbers to the properties in question. |
| screeners | Questions used to screen for appropriate respondents. |
| selection bias | A systematic effect on the data resulting from selection of respondents in a manner that deviates from random selection, so that some types of respondents are over- or underrepresented in the sample. |
| self-administered questionnaire | A questionnaire filled by out by the respondent with no interviewer. |
| significance level | The probability that the magnitude of the relationship might result in a sample of that size purely from sampling error if, in fact, it did not exist in the population. |
| simple random sample | A sampling design that seeks to select respondents from the population or sample frame in a completely random fashion, so every respondent has an equal probability of being selected, and no clustering or stratification methods are used. |
| skip pattern | Requirement to pass over certain questions in response to the respondent's answer to a previous question. |
| statistical analysis | The process of computation and manipulation of sample data in order to suppress the detail and make relevant facts and relationships more visible and meaningful, and to generate statistics in order to make inferences about the population as a whole. |
| statistical inference | The process of generalizing information from a sample to the population as a whole by estimating population parameters, based on their corresponding statistical values from the sample. |
| statistical significance | An explicit assumption by the analyst that a relationship revealed in the sample data also exists in the population as a whole, based on the relatively small probability that it would result only from sampling error if it did not exist in the population. |
| stratified sampling | A sampling design that divides the population into specific strata containing certain types of respondents, then selects subsamples of the required size for each strata, by that forcing the sample to be more representative. |
| structured question | Any question that lists or prescribes the response alternatives from which respondents must choose, such as multiple-choice or true/false questions and items accompanied by rating scales. |
| subsample | One part of an entire sample that is singled out for special attention or analysis, often defined in terms of a demographic characteristic. |

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| survey | A research technique where information requirements are specified, a population is identified, a sample selected and systematically questioned, and the results analyzed, generalized to the population, and reported to meet the information needs. |
| survey objectives | The decision-making information sought through the questionnaire. |
| survey research | Research where an interviewer interacts with respondents to obtain facts, opinions, and attitudes. |
| systematic | A relationship or effect that is not random, but rather one that is consistent or in a given "direction." |
| systematic bias | A redundant term, since bias is defined as a systematic effect, but commonly used to emphasize the nonrandom nature of a bias or to distinguish bias from random error. |
| systematic sampling | Another term for nth name sampling, where the number of units in the sample frame is first divided by the desired sample size to obtain the value of n , a value between one and n is randomly selected as a starting point or first case to be selected, and then every n th name or unit is selected, yielding a random sample. |
| telephone interview | Interview data collection using the telephone to contact respondents, as opposed to personal interviewing where respondents are in the presence of the interviewer and have visual contact. |
| validity | The degree to which the survey data or results are free from both systematic bias and random error. |

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